CAMPANALOGIA:

OR THE

ART OF RINGING

Improved.

With plain and easie Rules to guide the Practitioner in the Ringing all kinds of *Changes*.

TO

Which is added, great variety of *NEW PEALS*.

LONDON,

Printed by *W. Godbid*, for *W. S.* and are to be sold by *Langley Curtis* in Goat-Court on *Ludgate*-hill. 1677.

43...50

TO

THE HONOURED

AND TO

His much Esteemed FRIENDS,

The Members of the Society of

COLLEDG YOUTHS.

Gentlemen,

AS your Society even *ab origine* hath deservedly acquired an eminency in many respects above others of this kind; so more especi-

ally for the pregnancy of its Members in the composing of *Peals*. For when the Art of *Cross-pricking* lay enveloped in such obscurity, that it was thought impossible that double Changes on five bells could be made to extend farther than *ten*, and triple and double Changes on six farther than *sixty*; then it was that a worthy and knowing Member of your Society, to dissipate those mists of Ignorance, and to usher in the bright morn of Knowledg, prickt those much applauded Peals of *Grandsire* and *Grandsire Bob*; which for their excellency have for many years together con-

continued triumphant in practice amidst all others whatsoever; and which indeed have been a great light in the production of that great variety of new Peals herein contained; the greatest part of which being also the offspring of your Society, I therefore thought fit to usher them into the world under the wings of your Protection.

Gentlemen, as a member I held my self obliged to add my Mite to your full fraught Treasury of Speculative and Practical Knowledg of this kind; though I confess your acquisition on this account will be very mean, since my want of ability sufficient to

undertake a thing of this nature, and alſo want of opportunity by converſe with others to ſupply my own defects, have rendred the Book leſs acceptable than it might have been done by ſome more knowing head and acuter Pen. And although I am conſcious that it meriteth not your acceptance; yet I aſſume the confidence to believe that you will favour it with a kind entertainment amongſt you; and the rather, for that I know you are too judicious to ſentence it without firſt caſting into the ballance of your indifferent judgments ſome Grains of Allowance: The countenance

you ſhew it will ſilence Detractors, and be Armour of proof againſt the fools bolts which may happen to be ſoon ſhot at the Author, who is

Gentlemen,

A conſtant Well-wiſher to the Proſperity (though an unworthy member) of your Society,

F. S.

ERRATA.

Courteous Reader,

Some few faults have escaped the Press: as pag. 27 line the 4th. for grateful *read* graceful. *page 31. line the 10th. for* imitatieg *read* imitating, *with some others, which you are desired either candidly to amend, or easily to pass over.*

OF THE

ART

OF

Changes.

THese clear dayes of Knowledge, that have ranſackt the dark corners of moſt Arts and Sciences, and freed their hidden myſteries from the bonds of obſcurity, have alſo regiſtred this of *Ringing*, in the Catalogue of their Improvements; as well the Speculative as the Practick part, which of late years remain'd in *Embryo*, are now become perfect, and worthy the know-

ledge of the moſt ingenious. Although the Practick part of *Ringing* is chiefly the ſubject of this Diſcourſe, yet firſt I will ſpeak ſomething of the Art of *Changes*, its Invention being Mathematical, and produceth incredible effects, as hereafter will appear. But firſt, I will premiſe a word or two, to ſhew what the nature of thoſe *Changes* are. Some certain number of things are preſuppoſed to be changed or varied; as 2. 3. 4. 5. 6. or any greater number whatſoever; then the number of things to be ſo varied muſt have the like number of fixed places aſſigned them. As if five men were ſitting upon five ſtools in a row; the ſtools are ſuppoſed to be fixed places for the five men, but the men by conſent may move or change to each others places at pleaſure, yet ſtill ſitting in a row as at firſt: now this Art directs how, and in what order thoſe five men may change places with each other, whereby they may ſit ſixſcore times in a row, and not twice alike. And likewiſe a *Peal* of five Bells, being raiſed up to a fit compaſs for ringing of *Changes*, are there ſuppoſed to have five fixed places, which time aſſigns to their notes or ſtrokes; yet the notes of the Bells may change into each others places at pleaſure: now this Art alſo directs the manner and method of chang-

ing

ing the five notes in such sort, that they may strike sixscore times round, and not twice alike.

The numbers of *Changes* are thus to be discovered. *Two* must first be admitted to be varied two wayes; then to find out the Changes in *three*, the Changes on two must be multiplied by three, and the product will be six, which are the compleat number of Changes on three.

Those six Changes being multiplied by four, will produce 24, which are the compleat number of Changes on four. The 24 Changes on four, being multiplied by five, will produce 120, which are the compleat number of Changes on five. And in like manner the 120, being multiplied by six, will produce 720, which are the compleat number on six. The 720, being multiplied by seven, will produce 5040, which are the number of Changes on seven. The 5040, being multiplied by eight, will produce 40320, which are the number of Changes on eight. Those Changes on eight, being multiplied by nine, will produce 362880, which are the number of Changes on nine. Those Changes on nine, being multiplied by ten, will produce 3628800, which are the number on ten. Those on ten, being multiplied

by eleven, will produce 39916800, which are the number on eleven. Thoſe alſo being multiplied by twelve, will produce 479001600, which are the compleat number of Changes on twelve. And if twelve men ſhould attempt to ring all thoſe Changes on twelve Bells, they could not effect it in leſs than ſeventy five years, twelve Lunar Months, one week, and three days, notwithſtanding they ring without intermiſſion, and after the proportion of 720 Changes every hour. Or if one man ſhould attempt to prick them down upon Paper, he could not effect it in leſs than the aforeſaid ſpace. And 1440 being prickt in a ſheet, they would take up ſix hundred ſixty five Reams of Paper, and upwards, reckoning five hundred Sheets to a Ream; which Paper at five ſhillings the Ream, would coſt one hundred ſixty ſix Pounds five Shillings.

The reaſon of the aforeſaid Multiplication, by which the numbers of Changes are diſcovered, and alſo that thoſe Products are the true numbers of Changes, will plainly and manifeſtly appear in theſe following Demonſtrations.

But firſt, *two* muſt be admitted to be varied two ways, thus. 1 2

And then conſequently, *three* will 2 1 make

make three times as many Changes as *two*; for there are three times two figures to be produced out of three, and not twice two the ſame figures, which are to be produced by caſting away each of the three figures one after another. Firſt, caſt away 3, and 1.2 will remain; caſt away 2, and 1.3 will remain; caſt away 1, and 2.3 will remain. So that here are three times two figures produced out of the three, and not twice two the ſame figures, as 12. 13. 23. each two may be varied two ways, as before: then to the changes which each two makes add the third figure which is wanting; as to the two changes made by 1.2 add the 3, to the changes on 1.3 add the 2, and to the changes on 2.3 add the 1, and the three figures will ſtand ſix times together, and not twice alike, as here appeareth.

123
213
132
312
231
321

Four will make four times as many changes as *three*. For there are four times three figures to be had out of four, and not twice three the ſame figures, which are to be produced by caſting away each of the four figures by turns. Firſt caſt away 4, and 123 will remain; caſt away 3, and 124 will remain; caſt away 2, and 134

1234
2134
1324
3124
2314
3214
1243
2143
1423
4123

will remain; and laſtly, caſting away 1, and 234 will remain; ſo that here is 123, 124, 134, 234, and not twice three the ſame figures. Now each three may be varied ſix ways, according to the preceding Example. Then to the ſix changes which each three makes, add the fourth figure which is wanting; as to the ſix changes on 123 add the 4, to the ſix changes on 124 add the 3, to the ſix changes on 134 add the 2, and to the ſix changes on 234 add the 1, which renders the changes compleat; for then the four figures ſtand twenty four times together, and not twice alike, as here appears.

2413	
4213	
1342	
3142	
1432	
4132	
3412	
4312	
2341	
3241	
2431	
4231	
3421	
4321	

Five will make five times as many changes as *four*; for there are five times four figures to be had out of five, and not twice four the ſame figures, which are to be produced as before, by caſting away each of the five figures by turns. Caſt away 5, and 1234 will remain; caſt away 4, and 1235 will remain; caſt away 3, and 1245 will remain; caſt away 2, and 1345 will remain; caſt away 1, and 2345 will remain. So that here are five times four figures produced, and not twice four the ſame figures. Now each four maybe varied

twen-

twenty four ways, as in the preceding example; then to the twenty four changes which each four makes, add the fifth figure which is wanting: as to the twenty four changes on 1234, add the 5; to the twenty four changes on 1235, add the 4. to the changes on 1245, add 3. to the changes on 1345, add 2. and to the changes on 2345, add 1. which renders the changes compleat, for then the five figures ſtand fixſcore times together, and not twice alike.

12345	12354	12453	13452	23451.
21345	21354	21453	31452	32451
13245	13254	14253	14352	24351
31245	31254	41253	41352	42351
23145	23154	24153	34152	34251
32145	32154	42153	43152	43251
12435	12534	12543	13542	23541
21435	21534	21543	31542	32541
14235	15234	15243	15342	25341
41235	51234	51243	51342	52341
24135	25134	25143	35142	35241
42135	52134	52143	53142	53241
13425	13524	14523	14532	24531
31425	31524	41523	41532	42531
14325	15324	15423	15432	25431
41325	51324	51423	51432	52431
34125	35124	45123	45132	45231
43125	53124	54123	54132	54231
23415	23514	24513	34512	34521
32415	32514	42513	43502	43521
24315	25314	25413	35412	35421
42315	52314	52413	53412	53421
34215	35214	45213	45312	45321
43215	53214	54213	54312	54321

And in this manner the compleat numbers of changes on six, seven, eight, nine, ten, eleven, twelve, *&c.* may also be demonstrated.

The numbers of changes will also plainly appear by the methods, whereby they are commonly prickt and rung. Now the nature of these methods is such, that the changes on one number comprehends the changes on all lesser numbers, and that so regularly, that the compleat number of changes on each lesser number are made in a most exact method within the greater; insomuch that a compleat Peal of changes on one number seemeth to be formed by uniting of the compleat Peals on all lesser numbers into one entire body; which will manifestly appear in the 479001600 changes on twelve: for that Peal comprehends the 39916800 changes on eleven; these likewise comprehend the 3628800 changes on ten, these changes on ten comprehend the 362880 on nine, these on nine comprehend the 40320 on eight; these on eight comprehend the 5040 on seven; these likewise the 720 on six, the 720 also comprehend the 120 on five, the 120 comprehend the 24 changes on four, these also comprehend the six changes on three, and the six comprehend the two changes on two. Each of these

Peals

Peals (*viz.*) on eleven, ten, nine, eight, ſeven, ſix, five, four, three, and two, being made in a moſt exact method within the changes on twelve. For Example, *two* are firſt admitted to be varied two ways, thus — | 12
Now the figure 3 being hunted | 21
through each of thoſe two changes, will produce the ſix changes on three. The term *Hunt*, is given to a Bell to expreſs its motion in Ringing, which in figures is after this manner. It muſt lie behind, betwixt, and before the two figures: firſt behind them thus, 1 2 3; then betwixt them, thus, 1 3 2; now before them, thus, 3 1 2: this is called a *hunting* motion, and here it has hunted through the firſt change of the two, wherein it made three variations, as appears in the figures, ſtanding thus in order. — | 123
Now it muſt hunt through the o- | 132
ther change, which is 2 1, in the ſame | 312
manner as before; that is, firſt it muſt lie before, then betwixt the two figures, then behind them, thus, 321, 231, 213. Here | 321
it has hunted through again, wherein it | 123
made three more variations; which | 132
three being ſet directly under the former, the ſix variations will then plainly appear, as in theſe figures: where | 312
the three figures ſtand ſix times together, and not twice alike. | 321
| 231
| 213

Now

Now the figure 4 being in like manner hunted through each of thoſe ſix changes, will produce the 24 changes on four. Firſt, therefore it muſt hunt through the firſt, which is 123, letter (*a*); then through the ſecond change of the ſix, which is 132, letter (*b*); then through the third, which is 312, letter (*c*), and ſo it being hunted through the reſt of the changes likewiſe, will produce the twenty four changes on four.

(*a*) 1234 1243 1423 4123

(*b*) 4132 1432 1342 1324

(*c*) 3124 3142 3412 4312

The figure 5 being hunted through each of thoſe twenty four changes, will produce the 120 changes on five. Firſt therefore it muſt hunt through the firſt, which is 1234, letter (*a*); then through the ſecond, which is 1243, letter (*b*); then alſo through the third, which is 1423, letter (*c*). In which manner it being hunted through the reſt of the twenty four changes, will produce the 120 on five. And then the figure 6 being hunted through each of thoſe ſixſcore

(*a*) 12345 12354 12534 15234 51234

(*b*) 51243 15243 12543 12453 12435

(*c*) 14235 14253 14523 15423 51423

chan-

changes will produce the 720 changes on ſix. And the figure 7 being hunted through each of thoſe 720 changes, will produce the 5040. In which manner alſo the eighth, ninth, tenth, eleventh, and twelfth, being ſucceſſively hunted through each Peal in the aforeſaid order, will at length produce the compleat number of changes on twelve. Wherein 'tis obſervable, that all the figures, except two, have a hunting motion; which two may properly be term'd the Center, about which the reſt do circulate. By theſe methods it is evident, that every hunting figure hath a certain number of figures aſſigned, through which tis conſtantly to hunt: as in the aforeſaid Example on twelve, where the 1.2 are aſſigned for the figure 3 to hunt through, as appears in the ſix changes before. And in like manner, 123 are aſſigned for the figure 4 to hunt through; 1234 are aſſigned for the figure 5 to hunt through; 12345 for 6 to hunt through, *&c.* Now the figure 3 hunts as many times through the 1. 2. as thoſe two make changes, that is, two times wherein it makes twice three changes, that is, ſix, as before appeareth. The figure 4 hunts as many times through the 123, as thoſe three figures make changes, that is, ſix times; wherein it makes ſix times four changes,

which

which amounts to twenty four. The figure 5 hunteth as many times through the 1234, as thoſe four figures make changes, that is, twenty four times; wherein it makes twenty four times five changes, which amounts to 120. The figure 6 hunts as many times through the 12345, as thoſe five make changes, that is 120 times, wherein it maketh 120 times ſix changes, which amounts to 720. And in like manner the figure 7 hunts 720 times through 123456, wherein it maketh 720 times ſeven changes, which amounts to 5040. The eighth hunteth 5040 times through 1234567, wherein it makes 40320 changes. The 9th hunteth 40320 times through 12345678, wherein it makes 362880 changes. The tenth hunteth 362880 times through 123456789, wherein it makes 3628800. The eleventh hunteth 3628800 times through 1.2.3.4.5.6.7.8.9.10. wherein it makes 39916800. And laſtly, the twelfth hunteth 39916800 times through 1.2.3.4.5.6.7.8.9.10.11. wherein it makes 39916800 times twelve changes, which amounts to 479001600, being the compleat number on twelve. By which 'tis evident, that every hunting figure hunts as many times through its aſſigned number of figures, as thoſe figures are capable of making changes, which in

ſhort

ſhort comprehends the ſumme and ſubſtance of this method, which is univerſal from two, to all greater numbers whatſoever.

If we conſider the multitude of different words, wherewith we expreſs our ſelves in Speech, it may be thought almoſt impoſſible that ſuch numbers ſhould ariſe out of twenty four Letters; yet this Art of variation will produce much more incredible effects. To give an inſtance thereof, I will ſhew the numbers of every quantity of Letters from two to twelve, that may be produced out of the Alphabet. The generality of Words conſiſting of theſe quantities, (*viz.*) two letters, three letters, four, five, ſix, ſeven, eight, nine, ten, eleven, and twelve letters. There are 10626 times four letters to be produced out of the twenty four letters of the Alphabet, and not twice four all the ſame Letters. There are likewiſe 42504 times five letters, 134596 times ſix letters, 346104 times ſeven, 735471 times eight, 1307504 times nine, 1961256 times ten, 2496144 times eleven, and 2704156 times twelve. Now each quantity being varied by the rules of this Art, will produce incredible numbers. Firſt the 10626 times four letters, being multiplied by 24, which are the number of ways to vary each four letters, will pro-

duce

duce 255024 that is to ſay, four letters may be produced out of the Alphabet to ſtand together after this manner (*a b c d*) two hundred fifty five thouſand and twenty four times, and not twice alike. And in like manner, the 42504 times five Letters, being multiplied by 120, which are the number of ways to vary each five, will produce 5100480. The 134596 times ſix letters, being alſo multiplied by 720, will produce 96909120. The 346104, being multiplied by 5040, will produce 1564364160. The 735471, being multiplied by 40320, will produce 29554290720. The 1307504, being multiplied by 362880, will produce 474467051520. The 1961256, being mulmultiplied by 3628800, will produce 71170057772800. The 2446144, being multiplied by 39916800, will produce 99728079819200. And laſtly, the 2704156 time twelve letters, being multiplied by 479001600, will produce 1295295050649600, which products being all added together, as alſo 12696 which are the numbers conſiſting of two and three letters, the whole will amount to 1402645824276320, wherein there are not two alike, nor two letters of one ſort in any one of them; which being written or printed on large Paper in *folio*, al-

lowing

lowing 5000 to a ſheet, they would take up 561058329 Reams of Paper and upwards, reckoning 500 ſheets to a Ream: which Paper all the Houſes in the City and Liberties of *London* would not contain; and in quantity doubtleſs infinitely exceeds all the Books that ever were printed in the world, reckoning only one of each Impreſſion. And at the rate of five ſhillings the Ream, the Paper would coſt 1405645 82 Pounds ſterling; which is above four times as much as the yearly Rent of all the Lands and Houſes in *England* amounts to. And all the people both young and old in the City and Suburbs of *London* (admitting they are five hundred thouſand) could not ſpeak the like numbers of words under forty years and upwards, each of them ſpeaking 15000 every hour, and twelve hours every day. Theſe prodigious numbers are the more to be admired, conſidering that the greateſt number of letters in any of them, exceeds not twelve, neither are two letters of one ſort in any one of them: but by producing and varying all the greater quantities, and placing two or more letters of one ſort, or two of one ſort and two of another, with all variety of the like nature that commonly happens in words, the numbers ariſing thereby would infinitely

exceed

exceed the former. And if all the numbers of every quantity of letters from one to twenty four, together with all the variety as aforesaid, were methodically drawn out and varied according to the rules of this Art; which might easily be performed in respect of the plain and practical method of doing it; but the infinite numbers of them would not permit a Million of men to effect it in some thousands of years: it would be evident, that there is no word or syllable in any language or speech in the world, which can be expreſt with the character of our *Alphabet*, but might be found *literatim* and entire therein; and more by many thousands of Millions than can be pronounced, or that ever were yet made use of in any language.

I will here give one instance of another kind, shewing the admirable effects of this Art, and so conclude. A man having twenty Horses, contracts with a Brick-maker to give him one hundred pound Sterling; conditionally that the Brick-maker will deliver him as many Loads of Bricks, as there are several Teams of six Horses to be produced out of the aforesaid twenty to fetch them, and not one Team or Sett of six Horses to fetch two Loads. The Brick-maker might be thought to have made a very advantageous bargain,

bargain, but the contrary will appear. For there are thirty eight thouſand ſeven hundred and ſixty ſeveral Teams of ſix Horſes, to be produced out of twenty, and not twice ſix the ſame Horſes; then the Brick-maker muſt deliver as many Loads as there are Teams, and each Load conſiſting of five hundred Bricks, the whole would amount to 19380000, which being bought for one hundred pounds as aforeſaid, would not coſt above five Farthings a thouſand: and at the rate of thirteen ſhillings and four pence the thouſand, they amount to twelve thouſand nine hundred and twenty pounds Sterling. But ſhould a contract be made with the Brick-maker to deliver as many Loads of Bricks, as there are Teams of ſix Horſes in each, to be produced out of the aforeſaid twenty, which ſhall ſtand in the Cart in a differing manner; that is to ſay, although there may be the ſame Horſes in ſeveral Teams, yet their places ſhall be ſo changed, that they ſhall not ſtand twice alike in any two Teams. On this account the Brick-maker muſt deliver ſeven hundred and twenty times as many as before; for there are 38760 ſeveral Teams as before I have ſhewed: then each Team may be placed 720 ways in the Cart, and not twice alike, which is to be done accor-

ding to the methods whereby the 720 chan-
ges on ſix Bells are rung. So that 38760
which are the number of Teams, multiplied
by 720, which are the number of ways to va-
ry the ſix Horſes in each Team, the produ&
will be be 27907200, which are the com-
pleat number of Teams; and every Team car-
rying one Load, conſiſtng of five hun-
dred Bricks, the Whole will amount to
13953600000 Bricks. And after the pro-
portion of a hundred and fifty thouſand of
Bricks to a Houſe, they would build ninety
three thouſand and twenty four Houſes;
which are above ſix times as many as the late
dreadful fire in *London* conſumed. And at the
rate of thrteen ſhillings and four pence the
thouſand, they are worth 6976800 pounds
Sterling, which is at leaſt four hundred Wag-
gon-loads of money, as much as five Horſes
can ordinarily draw.

AN

AN

INTRODUCTION

To the Practice of

RINGING.

AS the original design of casting Peals of Bells was in order to make pleasant Musick thereon; so the Notes in every Peal are formed apt for that end and purpose, every Peal of Bells being tun'd according to the principles of Musick; for in a Peal of six Bells are the six plain Song-Notes, whereupon all Musick consists, namely, *la sol fa mi re ut.* But in regard that in ringing of them the Notes cannot be had at command, as the Notes of other Instruments may; therefore, as the Practitioners in ancient time found some necessity to cause all the Notes to strike successively after one another, so likewise they thought fit in ringing them to place the Notes in this following order. The least note to lead or strike first, then the Note which is the next degree

deeper or flatter, and ſo the reſt of the notes to ſtrike after each other according to their degrees, the flatteſt ſtriking laſt; in which order the notes were ſucceſſively reiterated both at fore-ſtroke and back-ſtroke, from the beginning to the end of each Peal. And at this day the ſame order is alſo obſerved in raiſing, ceaſing, and ringnig them at a low compaſs; wherein each note being confin'd to ſtrike in a certain place, therefore had they their terms of Firſt, Second, Third, Fourth, Fifth, *&c.* given them, to denote their order and places of ſtriking; from whence alſo the Bells derive thoſe terms of diſtinction by which they are now known. Although the ringing of a Peal of Bells in the aforeſaid order, (which is commonly term'd *Round-ringing*) is in it ſelf Muſical; yet the Notes may be ſo placed in ringing, that their Muſick may be rendred much more pleaſant: for in Muſick there are Concords, which indeed may be term'd the very life and ſoul of it, that renders all Muſick exceeding pleaſant: the principal are Thirds, Fifths, and Eights; Thirds are 1 3. 2 4. and ſuch like: Fifths are 1 5. 2 6. *&c.* Eights are 1 8. 2 9. 3 10. *&c.* each Concord conſiſting of two notes. They may well be termed Concords, in reſpect of their agreement

and

and harmony; for the two notes (as if it were by mutual conſent) being ſtruck together at one inſtant, or elſe immediately after one another, affords delightful melody to the ear; in which reſpect, a peal of five Bells are capable of making better Muſick than a peal of four; ſix better than five; and more eſpecially will ten or twelve make more excellent Muſick than any leſſer numbers can poſſibly do, there being greater variety of Concords therein, and eſpecially of Eights. For this Muſical end were changes on Bells firſt practiſed, *changes* being nothing elſe but a moving and placing of the Notes in ringing, whereby variety of pleaſant Muſick is made; and as the manner of moving the notes, is, for two notes to change places with each other, therefoae are they called *Changes*. The methods of changes being ſomewhat intricate, I have therefore penn'd the following Treatiſe as a Clue to guide the Practitioner through the Labirinth of them, wherein I have made uſe of figures to repreſent the notes of Bells, the manner thus. In a peal of five Bells there are five ſeveral notes, which with figures are thus expreſt, 1 2 3 4 5: the figure 1 repreſents the leaſt or ſharpeſt note, which is term'd the Firſt, becauſe its place in round ringing is to lead; this note is moſt

commonly called the *Treble*. The figure 2 repreſents the note which is the next degree deeper or flatter, and is term'd the Second becauſe it ſtrikes in the ſecond place. And in like manner 3 repreſents the note of the third Bell, 4 the note of the fourth Bell, and 5 the note of the Fifth or Tennor. In which manner, the figures in all the following methods do likewiſe repreſent the notes of Bells.

Since the ringing of changes requires the peal of Bells, on which the changes are to be rung, to be firſt raiſed up to a ſet Pull, which compaſs is moſt proper for the ringing of them; therefore the Learners firſt practice muſt be to raiſe a Bell true in peal, to ring it at a low compaſs, and alſo to ceaſe it true in peal, wherein conſiſts the chief grounds of this Art, which depends on the Ear, and therefore much judgment is required therein. And to ſpeak the truth, moſt practitioners are in theſe days ſomewhat deficient herein; the ringing of changes having generally diverted the Learners fancy from the practice of *raiſing*, *round-ringing*, and *ceaſing*, by which means we have in a manner loſt one Excellency in the purſuit of another. Therefore I could wiſh that the Practitioners of this Art would ſet a greater eſteem on true

Ring-

Ringing in general, ſince the only excellency as well in the ringing of Changes as Rounds, depends thereon: the keeping of time being as eſſential to render all kinds of ringing pleaſant to the ear, as 'tis to render any other kind of Muſick; therefore the practitioner ought to have a Muſical eare, and to have ſome judgment in beating time, without which he can never ring his Bell true in its place. A proſpect of true ringing at any certain compaſs under the Sett, may thus be taken; for Inſtance, in ringing a peal of 5 Bells; from the fore-ſtroke of every note to the next fore-ſtroke of the ſame note, there ought to be eleven *punctums* or Beats of time, which are all ſuppoſed to ſtand at Æquidiſtances: now in ten of theſe *punctums*, the five notes ought exactly to ſtrike at the fore-ſtroke and back-ſtroke, and the eleventh ſtands as a Cypher to guide the Treble-note at fore-ſtroke to a double proportion of time from the Tenor-note at back-ſtroke: which blank *punctum* muſt alſo be beaten in the ſame place by every note, to render its fore-ſtroke anſwerable to that of the Treble. For example; the third note having ſtruck at fore-ſtroke, it muſt beat eleven *punctums* of equidiſtance unto its ſtriking there again. The firſt *punctum* is that of the 4th note, the ſecond 5, the

third 1, the fourth 2, the fifth 3, the ſixth 4, the ſeventh 5, the eighth 0, the ninth 1, the tenth 2, the eleventh its own place of ſtriking again at fore-ſtroke. Theſe *punctums* or Beats of time, muſt be proportioned either wider or cloſer, according to the compaſs of the Treble: therefore firſt the Treble muſt fix its compaſs certain and true at fore-ſtroke, which ought to be proportionate to what the number of the notes, and compaſs of the peal of Bells, may according to judgment permit; and then from one fore-ſtroke of it to the next, if there are five notes; there ought to be eleven *punctums* of equidiſtance aſſigned, wherein the notes ſhould exactly ſtrike (except the blank) as before. From hence 'tis, that the moſt judicious Ringer ought to be put to the Treble; for that bell cannot poſſibly be rung true by any other means than by beating of its own time; and although the exactneſs of true ringing requires the like in every note, when once the compaſs is fixed, yet the leading note being rung true, may be a guide to the reſt of the notes, which may tolerably take their meaſures of time from the Treble-note: but for every note to take its meaſure of time ſolely from the next preceding note, muſt needs be very erronious; for thereby they

they implicitely lead one another out of the way. Or elſe in the ringiug of five bells, from the fore-ſtroke of every note to the next fore-ſtroke of the ſame note, there may be one and twenty *punctums* or beats of time aſſigned, to ſtand at equidiſtances; and the five notes, as they follow one another, at the fore-ſtroke and back-ſtroke to ſtrike in every ſecond *punctum*, except the Treble-note at fore-ſtroke, which muſt ſtrike in the third *punctum* from the Tenor at back-ſtroke; ſo that then there will be two of thoſe ſpaces betwixt every note, and three betwixt the note of the Tenor at back-ſtroke and the note of the Treble at fore-ſtroke, which poſſibly by ſome may be held a better compaſs than the former: but *quot homines tot ſententiæ*. Every Practitioner, that has judgment to beat his own time, has the advantage of ringing his bell true, whilſt the reſt of the notes commit faults: for the compaſs being once fixed, as many bells as do either riſe or fall from thence commit errors.

The trueſt way of raiſing a peal of bells according to the beſt of modern practice, is, as quick as may be; every Ringer taking aſſiſtance to raiſe his bell, according as the going of it requires. In raiſing of them, the leſſer bells, as the Treble *&c.* ought at the firſt

pull

pull to be ſwayed very deep, and held dow
in the ſway by ſtrength of armes as much a
may be, to delay the time of their firſt ſtri
king, by which means the bigger bells, whic
carry a large compaſs, may have ſpace t
come in; and the raiſing of the ſmaller bell
to be continued with a ſtrong pull, givin
them ſcope over head (for the aforeſaid rea
ſon) untill they come up Frame-high, o
thereabouts, and then the pull to be ſlacken'd
and the bells leiſurely to be raiſed to the in
tended height or pitch. The bigger bells o
the peal, as the Tenor *&c.* muſt in their firſ
raiſing be checkt or pinch'd over head, by
which means the notes of all the bells may b
made to ſtrike round in their due place an
order from the beginning; and obſerve, tha
at the firſt pull all the bells muſt follow on
another as cloſe as may be. A peal of bell
may thus be ceaſed: the falling of the bell
from a Sett-pull muſt gradually be done, by
checking them only at Sally, until the low
compaſs renders the Sally uſeleſs; and when
they are ceaſed ſo low, that they ſcarce ſtrike
at back-ſtroke for want of compaſs: then he
that rings the Treble, may give notice (by
ſtamping on the ground) that the next time
the bells come to ſtrike at the fore-ſtroke,
they may be checkt down ſo low as to ceaſe
thei

their ſtriking at the back-ſtroke, yet their ſtriking round at the fore-ſtroke may be continued, until they are brought into a chime, which is a grateful concluſion of a peal.

In raiſing of a peal of bells, all the notes ought to ſtrike round at one pull: but miſtake me not, I do not mean at the firſt pull; for at ſmall bells 'tis uſual to ſway them all round at the firſt pull without ſtriking; at the ſecond pull to ſtrike them at the fore-ſtroke, and at the third pull at back-ſtroke. In raiſing of a peal of more weighty bells, 'tis uſual to ſtrike them double at the fourth pull, becauſe the extraordinary weight and large compaſs of the hind-bells permits it not to be done ſooner. In the firſt raiſing of a peal of bells, one bell ought not to ſtrike before the reſt, or to miſs ſtriking when the reſt go round: neither ought any bell in ceaſing to ſtrike after the reſt, or to leave ſtriking before the reſt; all which, according to the ſtrictneſs of true ringing, are accounted great faults.

The peal of bells on which the changes are to be rung, muſt firſt be raiſed up to a Sett-pull, which compaſs is moſt proper for the ringing of changes; for then the notes of the bells may be had at command. Therefore before the young Practitioner can be capable of ringing changes, he muſt be extraordinary well

well skill'd in the managing of a bell at a Sett-pull, which is absolutely requisite, for this reason: In the ringing of changes, his mind will be so busied and wholly taken up with the consideration of the course and method of them, and his eye continually wandring about to direct his pull in the following of the other bells; that unless he has extraordinary skill in the managing of his own bell, and can set it in a manner hood-winkt, he will be apt either to drop or overturn it; or else on the other hand, for want of skill, his eye and mind will be so fixed on his own rope and bell to guide the managing of it, that he cannot at the same time mind the course of the changes, and then no wonder if he is in a wood, which consequently follows; and indeed hence partly 'tis, that the Learners in their first practice do oftentimes toil and moil themselves to so little purpose. Therefore 'tis not enough that the young Practitioner can set a bell it may be half a score times together, when 'tis an even wager that he either drops or overturns it in those ten pulls: but he must be so perfectly skill'd, as that he might adventure to lay ten to one, that he can set it thirty or forty times together, both fore-stroke and back-stroke, without dropping or overturning it, and without looking

looking directly either on his hands or rope whilſt he ſets it. Therefore in his practice of ſetting a bell, he may caſt his eye about on the other bell-ropes whilſt he manageth his bell, whereby he may accuſtom himſelf to manage it as the ringing of changes requires.

The ringing of changes is performed, partly by the ear, and partly by the eye; the ear informs when to make a change, the eye directs the pull in the making of it; but then again the ear guides the ſtriking of the note true in its place according to time. So that the ear and eye have each of them its proper object in the ringing of changes, and therefore ought at the ſame time to be abſolutely free from all others whatſoever, the notes of the bells being the object of the ear, and the bell-ropes the object of the eye. Now theſe two Senſes in the time of ringing do each of them thus perform its office. Firſt, the ear, as a Sentinel, diſcovers the near approaching change, and alſo the place wherein his note lies, that is, whether before or behind the note wherewith 'tis to make a change, and gives preſent information to the eye, to perform its part accordingly in the making of it; but then again the eye refers it to the ear, to place the note true in ſtriking. But queſtionleſs (by the bie) the trueſt ringing of chan-

changes is to be performed only by the ear; but then the Practitioners muſt be capable to judg of time, and to beat it true, which muſt be the only direction to guide their pull; and then it muſt be performed at a peal of bells that may be managed with eaſe: and being ſo fitted in all reſpects, the changes may doubtleſs be rung more true, with greater pleaſure to the Practitioners, and much more free from miſtakes and forgets, only by the ear, than by making uſe of the eye to direct their pull. But in regard that either the ill going of the bells, or want of fit accompliſhments in the practitioners, may render it unfit for common practice; therefore the ſureſt way is to ring both by the eye and ear, as I ſaid before. Now to render the eye and ear rightly uſeful in the ringing of changes, five things ought by the young Practitioner to be well underſtood. Firſt, he muſt be able to diſtinguiſh the notes of a peal of bells, and to know one from another in the time of ringing. Secondly, he muſt apprehend the places of the notes. Thirdly, the precedency of notes. Fourthly, the manner of making a change in ringing. Fifthly, a general proſpect of the manner of putting the four preceding notions into practice.

Obſervation 1. The Learner muſt be able

to

to diſtinguiſh the notes of a peal of bells one from another, and to know them aſunder; as the Treble-note from the Second, the Second from the Third, *&c.* which, tis true, may readily be done in round ringing, becauſe each note may be known by the place wherein it conſtantly ſtrikes; but in ringing of changes it is more difficult. For admitting that ſix bells ſhould ſtrike in this order, 5.3.6.1.4.2. it might puzzle an unskilful ear to judg which is the Treble, or which the Second note, eſpecially whilſt any other note ſtrikes betwixt them: and the like difficulty might happen in dinguiſhing the reſt of the notes, as the 2ᵈ from the 3ᵈ, *&c.* To remove this difficulty, he muſt endeavour to acquire ſome skill in tuning the notes of a peal of bells with his voice, which he may do by imitatieg the notes of the bells when he hears them ring: or elſe any perſon that has skill in ſinging, will preſently direct him therein, and alſo how to take the true pitch of any notes with his voice, which will be the only means to diſtinguiſh them aſunder.

Obſerv. 2ᵈ. The Learner muſt rightly apprehend the places of the notes, which I think cannot better be done than by this means. Conſidering that the notes of a peal of bells do all ſtrike one after another at the foreſtroke;

ſtroke, and the like at back-ſtroke; it might be requiſite for him to imagine, that the notes in their ſtriking do lie in a direct line, that is, in a row at the fore-ſtroke, and the like again at back-ſtroke; for then the places of the notes will much reſemble the places of the figures wherewith the changes are prickt: for as the figures of every change do all ſtand in a row; ſo likewiſe the notes of the bells, being imagined to ſtrike in the like row, he may the more readily apprehend the places of the notes, and conſequently of changing them. For the practick part of this Art, is performed by means of imaginary, not real notions; which will thus manifeſtly appear. This is the platform of a Frame, wherein five bells may be ſuppoſed to hang in a Steeple, the figures therein repreſenting the places wherein the five bells hang. Now in the ſixſcore changes on five bells, we will ſuppoſe the Treble to be the whole Hunt, and to hunt up firſt over the Second, then over the Third, *&c.* Now the Treble cannot really move out of the place wherein it hangs; but by delaying its ſtriking untill the Second Bell has ſtruck, it may by that means ſtrike next after it; and again, by delaying its ſtriking until the Third has ſtruck,

1	2
3	4 5

ſtruck, it may alſo ſtrike next after that, this being the true manner of the changes; by which 'tis evident, that the bells have neither really ſuch places nor motion as is pretended, but is meerly imaginary, and was at firſt feigned only as a Guide to direct the Practitioner's apprehenſion in the ringing of them. So that although the art of changes is in it ſelf a real thing, yet the notions by which they are reduced to practice on bells, are not ſo. For which reaſon, the ſeveral practitioners of this Art, before they can become expert, are fain to form in their minds imaginary notions to guide them; ſome after one manner, ſome perhaps after another, according to their ſeveral fancies, yet all tending to render the methods of changes practicable on bells; and having once form'd in their minds ſuch imaginary helps, they become expert in ſhort time: and then no ſooner do they underſtand the methods of changes prickt with figures, which they commonly diſcover at firſt view; but they are preſently capable of ringing them readily on bells, which experience daily teſtifies. And hence it is, that oftentimes the Learners, although they perfectly underſtand the methods of changes prickt, and alſo can perfectly manage a Bell; yet for want of a right ap-

prehenſion of the nature of changing the notes, which of themſelves it may be they cannot ſoon attain, are therefore much puzled in their firſt practice of ringing changes. Therefore as a guide, the Learner muſt firſt form in his mind a fit repreſentation of the places of the notes; which I think cannot better be done, than by imagining each note to be a figure; as the Treble-note to be the figure 1, the ſecond note the figure 2, the third note the figure 3, and the like of the reſt. Then whenſoever he hears a peal of bells ring, let him by ſtrength of imagination conceit, that each note bears the ſhape of a figure; that is, at the ſame inſtant of time that the note ſtrikes, he may imagine that it leaves the impreſſion of the figure behind it, and that with the eye of his imagination he perfectly ſees it: and likewiſe as the notes of the bells do all ſtrike after one another at the fore-ſtroke, ſo he may imagine that they lie in a row in the ſhape of figures; and the like again at back-ſtroke. For inſtance: ſuppoſe that five Muskets were charged with five bullets, and that each bullet bears the ſhape of a figure; one Gun to be charged with the figure 1, another with the figure 2, and the other three Guns with theſe three figures, 3. 4. 5. Then ſuppoſing a ſtraight

line

line were drawn upon the wall, thus——— and that the five Muskets were by five men levell'd againſt the line, which is to be the mark for them to ſhoot at; the figure 1 to be firſt ſhot off, then the figure 2, and ſo the reſt in order immediately after one another: now at the ſame inſtant of time that the Guns are heard to go off, the five figures would appear in a row upon the wall, thus.

So in like manner when he hears a peal of five bells ſtrike after one another at the fore-ſtroke, and again at back-ſtroke, he may imagine that at the very inſtant of their ſtriking their notes appear to his apprehenſion in the ſhape of the five figures, and that they ſtrike in a row, thus, 1 2 3 4 5, as if each Bell were a Gun, and had ſhot out its note in the ſhape of a figure. There being neceſſity that the young Practitioner muſt either imagine each note to be a real figure, or elſe a repreſentative: for as the ear is to be his guide to direct when to make each change; ſo a right apprehenſion of the motion and places of the notes, muſt be a means to guide his ear. Now in regard that the changes are firſt prickt with figures, from whence the notes of the bells derive

their courſe; therefore if in ringing he imagine each note to be a real figure, then the ſame knowledge that guides the pricking, guides alſo as readily the ringing of them, for then the note of his bell is ſuppoſed to have the ſame courſe with that of a real figure. But if he imagines that each note is not a real, but a repreſentative of a figure; then conſequently it muſt only have the like, and not the ſame courſe: by which means, whilſt he is ringing of changes, his mind muſt have frequent recourſe to his Pocket, that is, to the changes there prickt; from whence he muſt continually fetch inſtructions to direct the courſe of his Bell, which is oftentimes the caſe of the Learner: his thoughts in the time of ringing being commonly upon the figures that are prickt, either upon paper, or elſe upon the Steeple-wall, whilſt it ſhould be wholly intent upon the notes. Therefore in a word, the Practitioner whilſt he is ringing of changes, muſt fix his mind fully and wholly upon the notes of the bells, and not permit it in the leaſt to wander from thence; for the notes are to be the ſole object of the thoughts in the time of ringing.

The notes being imagined to ſtrike in a row as aforeſaid, their places will then ſoon be underſtood. The notes do take their

places

places according to their ſucceſſive order of ſtriking both at fore-ſtroke and back-ſtroke; each ſucceeding note taking its place next to that which preceds it: for whatſoever bell leads either at fore-ſtroke or at back-ſtroke, its note lieth in the firſt place of the ſuppoſed row of notes; and that which ſtrikes next after the leading note, its note lieth in the ſecond place of the ſuppoſed row of notes, and ſo the reſt in the like order. As if five bells ſhould ſtrike thus after one another either of fore-ſtroke or back-ſtroke, 5 4 1 2 3. here the 5*th* lieth in the firſt place, becauſe it was firſt ſtruck; the 4*th* in the ſecond place, becauſe it was ſecond ſtruck; the Treble in the third place, becauſe it was third ſtruck; the 2*d* in the fourth place, becauſe it was fourth ſtruck; and the 3*d* in the laſt place, becauſe it was laſt ſtruck; and the like of the notes in every change.

Obſerv. 3. The next thing to be underſtood by the Learner, is the precedency of the notes. Now whereas in the ringing of changes, the notes do all ſtrike after one another at the fore-ſtroke, and again at the back-ſtroke, therefore are they ſaid to lie before or behind each other, according to their places of ſtriking. As if five men were ſtanding in a row, as theſe five figures repreſent,

1 2 3 4 5, the first man to ſtand at the fig. 1, the ſecond man at the figure 2, *&c.* and that they ſtand with their faces all one way, that is, the firſt man ready to lead, and the reſt to follow him one behind another. Now the firſt man ſtands before the reſt, and the fifth man behind the reſt; the ſecond man ſtands behind the firſt man, but before the third; the third man ſtands behind the ſecond, but before the fourth; and the fourth ſtands behind the third, but before the fifth. In which manner the notes being ſuppoſed to ſtrike in the like row, may alſo be ſaid to lie before or behind each other as the men did. For whatſoever note leads either at fore-ſtroke or back-ſtroke, is ſaid to lie before the reſt; and that which ſtrikes laſt, to ſtrike behind the reſt. The note which lieth in the ſecond place, as on the one hand it lieth behind the leading note, ſo on the other hand it lieth before the note in the third place. As the note in the third place lieth behind the note in the ſecond place, ſo it lieth before the note in the fourth place. And in like manner, every note is ſaid to lie behind thoſe that ſtrike before it, and before thoſe that ſtrike after it.

Obſerv. 4. A Change is to be made betwixt two notes, by moving them into each others

others places; wherein 'tis to be obſerved as a general Rule, That every change muſt be made betwixt two notes that ſtrike next to each other. As if five bells were ringing round in this order, 12345, the 1 and 2 may make a change, or 2 and 3, or likewiſe 3 and 4, or 4 and 5, becauſe each two lie next each other; but the 1 and 3 cannot, becauſe 2 ſtrikes between them, much leſs may 1 and 4, *&c.* The two notes which make every change, moves into each others places in the making of it; wherein one note is ſaid to move *up*, and the other *down*. The reaſon why one of them is ſaid to move up, is, becauſe he that rings that bell, in the making of the change muſt hold it up at the Sett a little longer than ordinary, to delay its ſtriking, whereby 'tis made to follow the other note which before it preceded; and becauſe 'tis ſo held up, therefore 'tis ſaid to make an *Up-change*, or to move up: and on the contrary, the reaſon why the other note is ſaid to move down, is, becauſe he that rings it, pulls down the bell a little ſooner than ordinary, to make it ſtrike before the note which before it followed; and becauſe 'tis ſo pulled down, therefore it is ſaid to make a *Down-change*, or to move down. I will here give a ſhort though certain rule to know when an

Up-change or a Down-change is to be made: whenſoever any note moves to ſtrike behind the note wherewith it makes a change, it makes an up-change in doing it; and whenſoever it moves to ſtrike before the note, which 'tis to make a change with, it makes a down-change in doing it: ſo that every note which moves fromward the leading-note, makes an up-change; and when it moves toward the leading-note, it makes a down-change. I will here ſhew the manner of making a change: admitting that a peal of five bells were raiſed to a ſett-pull, which is the uſual compaſs for ringing of changes; the notes are firſt ſuppoſed to ſtrike in this order, 12345. Now a change may be made betwixt any two notes that ſtrike next each other; I will here make it betwixt the 3d. and 4th. which is to be done by moving them into each others places. Now 'tis obſervable, that before the making of the change, the 3d. note lies before the 4th. that is, it ſtrikes next before the 4th; and the 4th. lies behind the 3d. that is, it ſtrikes behind it: now in the making of the change, the 3d. muſt move to ſtrike behind the 4th. wherein it makes an up-change; and the 4th. note at the ſame time muſt move to ſtrike before the 3d. wherein it makes a down-change;

the

the change being made, the bells will ſtrike thus, 12435. All changes whatſoever are made in the aforeſaid manner: for as the 3*d* note made an up-change in moving to ſtrike behind the 4*th*, and the 4*th* at the ſame time a down-change in moving to ſtrike before the 3*d*; ſo in like manner the two notes that make every change, muſt in the making of it move the one up, and the other down, as the 3*d* and 4*th* here has done. The Learner may take notice, that in ringing termes 'tis not uſual to ſay, that a bell makes an up-change, or a down-change; but in ſhort, that it *moves up* or *down*, which implies the former. When a note makes an up-change, 'tis then ſaid to move *over* the other note; and when it makes a down-change, to move *under* it: as in the next preceding example, where the 3*d* note is ſaid to move up over the 4*th*, and the 4*th* down under the 3*d*, in which manner the terms *over* and *under* are given to the two notes that make every change.

Obſerv. 5. In the time of ringing changes, two things are by the Practitioners to be well conſidered. Firſt, to obſerve and readily to know, which two bells are always to make the next ſucceeding change: Secondly, if he is concern'd therein, to conſider what bell he is to follow in the making of it.

Upon

Upon a right knowledge of theſe two thing
depends the Practick part of this Art. T
make him expert herein, he muſt befor
hand perfectly underſtand, and readily re
member the courſe and method of the chan
ges prickt with figures, wherein he ought t
be ſo well skill'd, as to be able to prick ther
down divers ways, that is, to make any figur
a Hunt at pleaſure; which when he can rea
dily and ſpeedily do, without pauſing to con
ſider of the courſe, then 'tis preſumed that h
underſtands the methods throughly. But ye
he will not be capable to put them in pra
ctice, untill he underſtands the manner o
making a change in ringing; neither can h
underſtand that, until he underſtands th
precedency of the notes; nor the preceden
cy, until he underſtands the places; nor th
places, until he knows the notes one from an
other. Therefore the four preceding obſer
vations being firſt perfectly underſtood, an
alſo the methods of the changes as before
the Practitioner may then ſucceſsfully pro
ceed in the ringing of changes; and as a fur
ther help therein I will here inſtruct him
There are three bells concern'd in the making
of every ſingle change, except only when 'ti
made behind, and then but two: whenſoeve
the note of his bell is to make a change with
any

hings ny other note, his ear muſt then inform him
. T hether it lies before or behind the other
befor ote; if it lies before, then in making the
ly re hange it muſt move up behind it, that is, to
chan ollow it; and conſequently, he muſt draw
ght t own his bell next after that which he makes
them change with, which is called an up-change,
gure s I ſaid before. But if the note of his bell
n rea ies behind the other, then in making of the
con hange it muſt move down to ſtrike before it,
at he nd conſequently he muſt draw down his bell
t ye next after that which the other before fol-
pra owed, this being a down-change. So that
er o he making of an up-change is very eaſie, be-
n he auſe he muſt always follow that bell which
s the he makes a change with; but a down-change
den- is more difficult, becauſe he cannot ſo readily
the pprehend what bell he is to follow; yet
n an- there is a certain rule for it, which is this:
ſer- to obſerve beforehand what note ſtrikes the
and next but one before his, which bell he muſt
re; follow in the making of the change. When-
pro- ſoever the two notes, which ſtrike next before
fur- his note, are to make a change; he muſt con-
im. ſider, that notwithſtanding his note is to lie
ing ſtill in its place, yet he is concern'd therein,
'tis becauſe the bell which he followed before
ver the making of the change,, muſt in the ma-
ith king of it move away down, and therefore he
ny muſt

muſt follow the bell that comes into its place

The changes are to be rung, either by *walking* them, as the term is; or elſe Whole pulls, or Half-pulls. By *walking* them, i meant, that the bells go round four, ſix, eigh times or more in one change; which way i very proper for young Practitioners, to in troduce them into a more ready way of Pra ctice; for whilſt the bells go round diver times in one change, they have in the mea time leiſure to conſider which two bells ar to make the next following change, and alſ what bell each of them is to follow in th making of it; and ſo by diligence in practic they will by degrees acquire a more read skill to enable them to ring at whole-pulls Whole-pulls, is, when the bells go round a the fore-ſtroke and back-ſtroke in a change and every time they are pull'd down at Sally a new change is made. Whole-pulls was th general practice in former times; and indeed conſidering the manner of the hanging of th bells in thoſe days, they could not well b rung at half-pulls: but ſince the improve ment of the Art of Bell-hanging, that is, with round Wheels, truſſing them up in the Stock and placing the Roll at right Angles with the Sole of the Wheel; the bells go much better, and are managed with more eaſe at

Sett-

Sett-pull than formerly: therefore the changes are now generally rung at half-pulls, that is, at the fore-ſtroke one change, at the back-ſtroke another, and ſo throughout.

In ringing half-pulls, ſome peals of changes will cut compaſs, wherein the whole Hunt comes always to lead at the back-ſtroke; to prevent which, make the firſt change of the peal at the back-ſtroke. In plain and ſingle changes on ſix bells, to hunt (that is, whole Hunt) the Treble, third, or fifth, down at the beginning of a peal cuts compaſs, unleſs prevented as before. Alſo to hunt the ſecond, fourth, or ſixth up at the beginning of a peal, cuts compaſs, unleſs prevented as before. Which rules, leaving out the Tenor, ſerves in like manner to prevent cutting compaſs on five bells.

'Tis convenient in ringing, to give notice of the extream changes, and he that rings the ſloweſt Hunt, may beſt do it. The manner of it is, to ſay *Extream*, when the leading bell is pulling down, in order to make the change next before the extream; by which means there will be one compleat change betwixt the warning and the extream: longer warning would be too much, and ſhorter too little.

THE

THE divers kinds of changes on Bells may be comprehended under two heads *viz.* Plain Changes, and Croſs Peals, which terms are comparatively given: for as the firſt are plain and eaſie only in compariſon to the methods of the ſecond; ſo conſequently the ſecond croſs and intricate in compariſon to the methods of the firſt. I will firſt ſhew in what reſpect they differ, and then proceed to the methods. Plain changes (I mean compleat peals) are ſuch as have one univerſal method, wherein all the notes except three have a direct hunting courſe, moving gradually under each other in one plain and uniform order. But the methods of croſs peals are various, each peal having a courſe differing from all others: and although moſt of them have Hunts, yet the Hunts have different kinds of motions, and ſome very intricate. Moreover plain changes are alſo term'd Single changes, becauſe in the ringing of them there is only a ſingle change made in the ſtriking of all the notes once round either at fore-ſtroke or back-ſtroke; whereas in croſs changes 'tis uſual to make as many changes as the number of notes will permit. For example, ſuppoſing that a peal of 5 bells were raiſed, and rung at a Sett-pull; the notes are ſuppoſed to ſtrike round

in

in this order, 12345: now any two of the notes that ſtrike next together may make a change, therefore either a ſingle or a double change may be made at pleaſure. The ſingle change is made by changing only two notes; the double change is made by changing four notes; that is, two to make one change and two another, yet 'tis called one double change, and not two changes, in regard 'tis made in the ſtriking of the five notes of the bells once round: as, admit the treble, ſecond, third, and fourth, ſhould make a change, 'tis thus to be done, 21435, where the Treble and Second made one change, and 3, 4 another; which we will imagine ſo be made at the fore-ſtroke of the bells, and therefore 'tis called one double change, and not two changes, becauſe 'tis entirely made in the ſtriking of the five notes once round. So that this one double change has effected that which would have required two ſingle changes to have done the like. For inſtance, there can but two notes change their places at once in a ſingle change, therefore the Treble and Second ſhall firſt change their places thus, 21345; then the third and fourth thus, 21435: ſo that here the five notes have gone twice round to effect that, which in the double change was done in going once round.

And

And this is the nature of the difference between Plain and Croſs changes.

As the Learner ought to proceed regularly in his practice, beginning firſt with the plaineſt and eaſieſt methods. I will therefore obſerve that order, and firſt ſhew the courſe and methods of Plain changes.

The Changes on two Bells.

Two bells are capable to make only two changes, which is to be done by changing the notes twice, as in theſe figures.

1 2
2 1
1 2

The Changes on three Bells.

There are ſix changes on three bells; which are made by this rule: the two firſt and two laſt notes muſt be changed by turns.

Firſt the two firſt notes, which are 1 2 thus.
The two laſt, which are 1 3, thus.
The two firſt
The two laſt
The two firſt
The two laſt

1 2 3
2 1 3
2 3 1
3 2 1
3 1 2
1 3 2
1 2 3

In theſe ſix changes 'tis obſervable, that the two firſt notes, which were 1 2, made the firſt change of the ſix; but they may as well be rung by beginning with the two

two laſt notes, which are 2, 3 thus—— 123 / 132

Next the two firſt notes, which are 1 3, thus,—— 312

The two laſt—— 321

The two firſt—— 231

The two laſt—— 213

The two firſt—— 123

The ſix changes can be rung no more than theſe two ways here ſet down.

The Six changes are ſometimes rung by obſerving a hunt therein, which is very improper, ſince every note has a like courſe. Yet I confeſs in demonſtrating the methods on twelve, I did there admit a Hunt into the ſix changes; but that was only for demonſtration ſake.

The compleat peals of plain changes, from three to all greater numbers whatſoever, as the Twenty four changes on four, the Sixſcore on five, the Seven hundred and twenty on ſix, *&c.* are prickt and rung by one method; all the notes having a hunting-motion, except only three in each peal, which three do make the ſix changes in the ſame manner as they are before prickt. So that the Six changes on three may be term'd the *baſis* or foundation of the compleat peals on all greater numbers.

Every Hunting note in each peal has a

certain number of notes assigned, through which 'tis always to hunt. The term *hunt* is given to a note in respect of the manner of its motion, which I will shew in this example. First, the notes of four bells are supposed to strike round in this order, 1234. The Treble shall be the Hunt, and the other three assigned or appointed for it to hunt through. Now whereas the Treble-note leads, it must move through its assigned number to strike behind them: and whereas every change must be made betwixt two notes that strike next each other, as I have shewed before in the *4th Observation*; therefore the hunting-note is confin'd to move gradually through the rest by making a change with each note that strikes next to it; and accordingly it must first move into the *2d* place, next into the *3d* place, and lastly into the *4th*. So that 'tis to make a change with every note that lies behind it; first with the *2d* note, next with the *3d*, and lastly with the *4th*.

	1234
The first change is thus ——	2134
The second thus ——	2314
The third thus ——	2341

The hunting note has here moved through its assigned number; for whereas at first it did lead, now it strikes behind them. Wherein 'tis observable, that it made up

changes

changes all the way; which of neceſſity it muſt do, becauſe every note with which it was to make a change, lay behind it: and becauſe it made up changes, therefore tis ſaid to have hunted up. The hunting-note ſhall now move through its aſſigned number again, to lead as at firſt. Therefore firſt it muſt move into the 3*d* place, then into the ſecond place, and laſtly into the firſt place, which is called the Treble's place; in which motion it muſt make a change with each note that ſtrikes next before it; firſt with the 4*th* note, next with the 3*d*, then with the 2*d*.

The firſt change thus —— ——	2314
The ſecond thus —— —— ——	2134
The third thus —— —— —— ——	1234

'Tis obſervable, that here the Treble made down-changes all the way, which of neceſſity it muſt do, becauſe every note with which it was to make a change, lay before it: and becauſe it made down-changes, therefore it is ſaid to have hunted down. This is the manner of the motion of the hunting notes in all peals of plain changes; for they hunt up and down through their aſſigned number, as the 1 here has done. This example is plain and full to inſtruct the Learner in the hunting of any bell, therefore he ought to peruſe it diligently, that he may underſtand the true

ſcope and meaning of it; and as a help he may apply himſelf to practice by taking a Treble, and attempt to hunt it up and down as this Example directs; which he may the more readily do, if he underſtand the 5*th Obſervation* before ſet down, which guides him to make a change in ringing. So that partly by reading and well conſidering of what I have here wrote, and partly by practice, he may in a ſhort time become perfect in the hunting motion of any note; which when he rightly apprehends, he will then preſently be capable of underſtanding the following methods; and therefore I ſhall be the more brief in my directions to them.

The Changes on four Bells.

Twenty four changes may be rung upon four bells: but the Learner may firſt practice the twelve changes, and the eighteen changes. In the twelve changes the notes are all to be hunted up after one another, which may be called the Twelve all over. Firſt the treble-note muſt be hunted up, letter (*a*); then the ſecond note muſt likewiſe hunt up, letter (*b*); next the third

1234

a { 2134, 2314, 2341

b { 3241, 3421, 3412

c { 4312, 4132, 4123

third note muſt hunt up, letter (*c*); and laſtly the 4*th* note alſo, letter (*d*).

1423
(*d*) 1243
1234

The four notes may alſo hunt down one after another. Firſt, the 4*th* note muſt hunt down to lead: then the 3*d* note likewiſe, and ſo the 2*d* and Treble one after another, which may be term'd the Twelve all under.

Courteous Reader, in my directions to the courſe of each peal, I do there refer by letters to the examples; which I am forced to do, to prevent thoſe confuſed breaks, and unhandſome ſpaces, which otherwiſe would have happen'd both in examples and precepts. Whatever letter I mention in my directions, refers to the like at the figures. For inſtance; in my directions to the twelve changes next before, I there directed the treble-note to be firſt hunted up, letter (*a*); which letter refers to the the like letter at the firſt three changes of the twelve, where the Treble hunted up, as 'tis here again repreſented, and the like of the reſt.

2134
2314
(*a*) 2341

In the Eighteen changes, the Treble is a

hunting note, but never hunts up farther than the 3*d* place; and when it lies there, the two first notes must make a change; and every time it leads, the two hindmost notes. First it hunts up into the 3*d* place, letter (*a*); the two first notes, which are 2. 3, make a change, letter (*b*); the Treble hunts down (*c*). The two hindmost notes make a change (*d*), the Treble hunts up (*e*). The two first notes, which are 3. 4, make a change (*f*); the Treble hunts down (*g*); the two last notes, which are 3. 2, make a change (*h*), which method being continued, will bring the bells round at the end of eighteen changes. The Eighteen changes may also be rung by hunting the 4*th* note down into the 2*d* place, and then a change to be made behind: the 4*th* note to be hunted up again into its own place, and then a change to be made before, which course being continued, will produce Eighteen changes.

	1234
a	2134
	2314
b	3214
c	3121
	1324
d	1342
e	3142
	3412
f	4312
g	4132
	1432
h	1423
i	4123
	4213
k	2413
l	2143
	1243
m	1234

The Six changes on three are the ground of the Twenty four changes on four; for one of the four notes hath a constant hunting motion

tion through the other three, in the ſame manner as in the preceding Example, *pag.* 50. and the three notes are to make the ſix changes in the ſame manner as I have before ſhewed in the changes on three bells; one of the ſix changes being always made every time the hunt lies either before or behind the three bells: therefore if the Learner do but rightly apprehend the courſe of the ſix changes, and alſo the manner of the motion of the hunting note, he will preſently underſtand the method of the twenty four changes. The ſix changes in the twenty four, according to the terms of ringing are called Extream changes, and the three bells which makes them, Extream bells. So that in the twenty four changes, there is a hunt and three extream bells. Every time the hunt lies either before or behind the extream bells, an extream change muſt then be made. The extream changes may be made two ways, *viz.* either betwixt the two fartheſt extream bells from the hunt, or elſe betwixt the two neareſt extream bells to it. In this Example every extream change ſhall be made betwixt the two fartheſt extream bells from the hunt, and the treble ſhall be the hunting note, which muſt firſt

	1234
a	2134
	2314
	2341
b	3241

hunt up (*a*); then the two fartheſt notes from the hunt, whichare 2.3, muſt make an extream change (*b*). The Treble muſt hunt down (*c*). The two fartheſt notes from the hunt, which are 2. 4, muſt make an extream change (*d*). The treble muſt hunt up (*e*); the two fartheſt notes from the hunt, which are 3.4, muſt make an extream change (*f*). The treble-note muſt hunt down (*g*). The two fartheſt extream bells from the hunt, which are 3.2, muſt make an extream change (*h*). The treble muſt hunt up (*i*). The two fartheſt notes from the hunt, which are 4. 2, muſt make an extream change (*k*). The treble muſt hunt down (*l*). The two fartheſt extream bells, which are 4.3, muſt make an extream change (*m*), which concludes the peal. Now the Learner for his ſatisfaction may take out the extream changes in the ſame order as they were made, as firſt at (*b*), then (*d*), and ſo (*f. h. k. m.*) and they will ſtand as they are here ſet down;

	3214
c	3124
	1324
d	1342
	3142
e	3412
	3421
f	4321
	4312
g	4132
	1432
h	1423
	4123
i	4213
	4231
k	2431
	2413
l	2143
	1243
m	1234

where 'tis evident, that 2.3.4 have made the ſix changes according to the method of the firſt ſix changes on three bells, before ſet down,

3241
1342
4321
1423
2431

(*pag.* 1234

(*pag.*48.) where the firſt change of that ſix was 213, and this being 324, is the ſame in courſe though the figures differ, and the reſt of the changes in this ſix, are likewiſe the ſame in courſe and method with thoſe.

In the preceding twenty four changes, every extream change was made betwixt the two furtheſt extream bells from the hunt. I will therefore here ſet down an example, where they ſhall be made between the two neareſt bells to it. Firſt, the treble hunts up (*a*). The two next notes to the hunt, which are 3.4, muſt make an extream change (*b*). The Treble muſt hunt down (*c*). The two neareſt notes to the hunt, which are 2.4, muſt make an extream change (*d*). The Treble hunts up (*e*). The two neareſt extream bells to the hunt, which are 2.3, muſt make an extream change (*f*). The Treble hunts down (*g*). The two next extream bells to the hunt, which are 4.3, muſt make a change (*b*). And the like extream changes being made as at (*k*) and (*m*), concludes the peal.

	1234
	2134
a	2314
	2341
b	2431
	2413
c	2143
	1243
d	1423
	4123
e	4213
	4231
f	4321
	4312
g	4132
	1432
b	1342
	3142
i	3412
	3421
k	3241

The ſix extream changes, *viz.*

(*b.*

(*b. d. f. h. k.* and *m.*) being ſet down by themſelves, will ſtand in this order, as here you ſee; where 'tis plain, that 2 3 4 have made the ſix changes, according to the method of the laſt ſix changes on three bells, *pag.* 49. where the firſt change of that ſix is made between the laſt two notes thus, 1 3 2. So in like manner is the firſt here thus, 243, which is the ſame method with that, though not the ſame figures.

	3214
l	3124
	1324
m	1234
	2431
	1423
	4321
	1342
	3241
	1234

So that the making of the extream changes two ways in the twenty four, proceeds from the two ways of making the ſix changes on three bells. This laſt way of making the extream changes, may, for diſtinction from the other way, be called *mediums*; which term is very proper, in regard that the two middlemoſt of the four notes do always make the extream change. The extream changes in one peal muſt all be made alike, that is, either betwixt the two fartheſt notes from the hunt, or elſe betwixt the two neareſt notes to it; but the moſt uſual way is to make them between the two fartheſt.

Any note may be made a hunt at pleaſure, and its firſt motion at the beginning of the peal may be either up or down. The twenty four

four changes may be rung ſixteen ways according to the aforeſaid method, yet the changes in each are ſtill one and the ſame; but by making each note a hunt, and moving it either up or down at the beginning, and alſo by making the extream changes two ways, the courſe of the changes will be ſo altered, that the ſame changes ſhall not come all along together in any two of thoſe ſixteen ways. With the hunting of one note it may be rung four ways; for the note may move either up or down at the beginning of the peal; then in its motion either way the extream changes may be made two ways, as before: ſo that to make each note a hunt, and with each hunt to ring it four ways makes ſixteen in the whole. Wherein 'tis obſervable, that the treble note cannot be moved down at firſt, nor the *4th* up; therefore an extream change muſt firſt be made,

2d down.	*3d. up*	*4. up.*
1234	1234	1234
3134	1243	2134
2143	2143	2143
1243	2134	2413
1423	2314	4213
1432	3214	4231
4132	3241	2431
4123	2341	2341
4213	2431	2314
2413	2413	3214
2431	4213	3241
4231	4231	3421
4321	4321	4321
4312	3421	4312
3412	3412	3412
3421	4312	3142
3241	4132	3124
2341	4123	1324
2314	1423	1342
3214	1432	1432
3124	1342	4132
3142	3142	4123
1342	3124	1423
1324	1324	1243
1234	1234	1234

made, which is as effectual as if either note had moved at first. I have here prickt the twenty four changes three ways, wherein the extream changes are all made betwixt the two fartheſt notes from the hunt.

The Changes on five Bells.

There are ſixſcore changes to be rung on five bells; but the Learner may firſt practiſe ſome ſhorter peals, as the Ten changes, the twelve, the Fourteen, the Twenty all over, the Twenty with one hunt, and the Forty eight.

In the Ten changes the treble muſt firſt hunt up *(a)*; the 2.3 muſt make a change *(b)*. The treble muſt hunt down again *(c)*; the 3.2 muſt make another change *(d)*. The ten changes may alſo be rung by hunting down the 5 to lead; then 3.4 to make a change; the 5 to be hunted up again, and the 4. 3 to make another change.

	12345
	21345
a	23145
	23415
	23451
b	32451
	32415
	32145
c	31245
	13245
d	12345

In the Twelve changes the treble hunts up into the third place; then the two firſt notes make a change; the treble hunts down again, then the two hindmoſt notes

	12345
a	21345
	23145
b	32145
	31245
c	13245

notes make a change. First the treble hunts into the 3*d* place (*a*); the two first notes 2. 3 make a change (*b*). The treble hunts down (*c*); the two last notes make a change (*d*); the treble hunts up (*e*); the two first notes make a change (*f*); the treble hunts down (*g*); the two last notes make another change (*h*).

d	13254
e	31254
	32154
f	23154
g	21354
	12354
h	12345

In the Fourteen changes, the treble first hunts up behind; then the 5 hunts down to lead; the treble then hunts down again into its own place; and the fifth also hunts up into its own place.

The Twenty all over are rung in the same manner as the Twelve all over upon four bells, to which I refer.

In the Twenty changes with one hunt, the hunting note continually hunts up and down through the other notes, and every time it lies either before or behind them, an extream change must be made betwixt the two fartheſt notes from it. The treble ſhall be the hunt, and firſt hunteth up (*a*). An extream change is made (*b*); the treble hunts down (*c*); an extream change is made (*d*); which

	12345
a	21345
	23145
	23415
	23451
b	32451

courſe

course must be continued to the end. The extream changes may also be made betwixt the two next notes to the hunt. Any note may be made a hunt at pleasure, yet still observing to make the extreams as before.

	32415
c	32145
	31245
	13245
d	13254

In the forty eight changes, the 5*th* and 4*th* are both hunts, and 1 2 3 do make the six changes; the 5. 4 do hunt down by turns, and when either of them leads, then one of the six changes is made. First the 5 hunts down (*a*); one of the six changes is made (*b*); the 5 hunts up into its own place (*c*); the 4 hunts down (*d*); another of the six changes is made (*e*); then the 4 must hunt up, and the 5 down again, *&c.* which course must be continued to the end.

	12345
	12354
a	12534
	15234
	51234
b	52134
	25134
c	21534
	21354
	21345
	21435
d	24135
	42135
e	42315

In the Sixscore changes, four of the notes do make the Twenty four changes, and the fifth note hunts continually through them: so that the course and method of the Sixscore is in effect the same with that of the Four and twenty. For as the Four and twenty comprehended the Six changes on three; so in like man-

manner the Sixſcore comprehend the Four and twenty changes on four, and the Six changes on three. Therefore in the Sixſcore there muſt be two hunts and three extream bells; one of the hunts is term'd the whole-hunt, and the other the half-hunt, The three extream bells do make the Six changes in the ſame manner as they were made before in the Four and twenty changes upon four bells, and are here alſo call'd Extream changes: the half-hunt and three extream bells do make the Four and twenty changes in the ſame manner as the Four and twenty changes on four bells were likewiſe made: and the whole hunt continually hunts through thoſe four bells, and every time it either leads or lies behind them, one change muſt then be made in the twenty four. 1 ſhall here be the whole-hunt, 2 the half-hunt, and 3 4 5 extream bells: ſo that 2345 muſt make the four and twenty changes. Every extream change ſhall be made betwixt the two fartheſt extream bells from the half-hunt. Firſt, the treble hunts up (*a*). One of the twenty four changes muſt now be made; and therefore 2, which is the

	12345
	21345
a	23145
	23415
	23451
b	32451
	32415
c	32145
	31245
	13245
d	13425

hunt

hunt in the twenty four, muſt begin its motion through the extream bells (*b*). The treble hunts down (*c*); the half-hunt muſt proceed in its courſe (*d*); the whole-hunt hunts up (*e*); The half-hunt proceeds forward (*f*); the whole-hunt moves down (*g*). The half-hunt ſhould now proceed, but having finiſhed its courſe through the extream bells, therefore an extream change muſt now be made betwixt the two fartheſt extream bells from it, which are 3.4 (*h*). The treble muſt hunt up (*i*); the half-hunt muſt now begin its courſe again through the extream bells (*k*); treble hunts down (*l*); the half-hunt proceeds in its courſe down (*m*); treble hunts up (*n*); the half-hunt proceeds in its courſe down (*o*); treble hunts down (*p*); the half-hunt having finiſhed its courſe, threfore an extream change muſt be made betwixt the two fartheſt extream bells from it, which are 3.5 (*q*). The

	31425
	34125
e	34215
	34251
f	34521
	34512
	34152
g	31452
	13452
h	14352
	41352
i	43152
	43512
	43521
k	43251
	43215
l	43125
	41325
	14325
m	14235
	41235
n	42135
	42315
	42351
o	24351
	24315
p	24135
	21435
	12435
q	12453
	21453
r	24153
	24513
	24531
s	42531

treble

treble hunts up(*r*). The half-hunt begins its motion again through the extream bells, and first it moves up over 4*th*(*s*). The whole hunt moves down (*t*); the half-hunt must proceed in its course, and therefore must move over another note (*v*). And this method being observed, will produce sixscore changes, and then the bells will in course come round. Now 'tis observable, that the changes at (*b d f h k m o q s v x* and *z*, being set down by themselves, that is, the 1 to be excluded, and the changes on 2345 to be set directly under one another in the same successive order as they were made, it will thereby appear, that those four figures have made twelve changes of the twenty four, according to the method of the first twenty four changes on four bells before set down. And whereas here are just half the sixscore changes prickt down, so likewise here are just half the four and twenty changes made therein: and the remaining part of this sixcore being likewise prickt, the remaining part of this four and twenty would also appear therein, which part being added to the former twelve, would make up

	42513
r	42153
	41253
	14253
s	14523
	41523
t	45123
	45213
	45231
v	45321
	45312
	45132
x	41532
	14532
z	15432

the twenty four changes compleat; and th
method of them the ſame in all reſpects wit
the firſt twenty four changes on four bells
pag.

Any note may be made a whole hunt a
pleaſure, and its firſt motion at the beginnin
of the peal may either be up or down. An
note may alſo be made a half-hunt, and it
firſt motion likewiſe up or down at pleaſure
yet ſtill obſerving that the half-hunt an
three extream bells muſt make the twenty
four changes, as in this laſt example. So tha
in the ſixſcore changes the Learner may ob
ſerve, that the three extream bells are al
ways aſſigned for the half-hunt to hun
through; and the half-hunt and three ex
tream bells are alſo aſſigned for the whole
hunt to hunt through: ſo that the whole
hunt always hunts through four notes, and
the half-hunt through three. The extream
changes may be made two ways; firſt, be
twixt the two fartheſt extream bells from
the half-hunt, as in this laſt example: ſecond
ly, betwixt the two next extream bells to the
half-hunt, which may be called *mediums*, for
diſtinction from the former. But the moſt
uſual and eaſieſt way, is to make them be
twixt the two fartheſt notes from the half
hunt.

Where

Whereas the treble or fifth being made whole-hunts, the firſt of them can neither be moved down, nor the laſt up, at the beginning of a peal; therefore one of the twenty four changes muſt firſt be made, which is as effectual, as if the treble had moved down, or the 5*th* up.

The Learner may obſerve, that two of the four and twenty changes are never made together in any ſixſcore, but as ſoon as one is made, the whole-hunt moves through the four notes before another can be made.

The ſixſcore changes may be rung one hundred and ſixty ways, which are thus demonſtrable. There are five times four figures to be produced out of five, and not twice four the ſame figures: as 1234. 1235. 1245. 1345. 2345. with each four the twenty four changes may be prickt ſixteen ways, as before I have ſhewed on four bells; ſo that here will be five times ſixteen four and twenties, which amount to eighty, and not two alike. Now to each four add the fifth figure which is wanting, as to 1234 add 5, to 1235 add 4, to 1245 add 3, to 1345 add 2, to 2345 add 1, and every fifth figure being hunted through the ſixteen four and twenties, which the other four make, as the 5 through the ſixteen four and twenties which the

1234 make, and the like of the reſt, will produce as many ſixſcores as there were four and twenties, that is, 80. Then the whole hunt may hunt two ways through each four and twenty, that is, up and down at the beginning, which doubles the former number, and makes 160 in the whole.

Treble up, fifth down.

12345	12534	15243	21453	——	14325	13524
——	21534	51243	24153	14253	*Extre.*	13254
21345	25134	52143	24513	14523	13425	——
23145	25314	52413	24531	——		13245
23415	25341	52431	24351	15423	13452	*Extre.*
23451	52341	25431	24315	*Extre*	13542	12345
23541	52314	25413	24135	15432	——	
23514	52134	25143	21435	——	15342	
23154	51234	21543	12435	14532	*Extre.*	
21354	15234	12543	*Extre.*	14352	15324	
12354	*Extre.*	12453	14235	——	——	

Treble up, fourth down.

12345	12435	41253	21543	52134	——	14325
——	14235	14253	12543	51234	15342	13425
21345	41235	12453	12534	15234	15324	——
23145	42135	21453	21534	15243	——	13245
23415	42315	24153	25134	—	13524	13254
23451	42351	24513	25314	15423	13542	——
24351	*Extre.*	24531	25341	14523	——	12354
24315	42531	25431	*Extre.*	——	13452	12345
24135	42513	25413	52341	14532	14352	——
21435	42153	25143	52314	15432	——	

Se-

Second down, fourth up.

12345	31524	34125	43512	35412	*Extre.*
——	31254	34215	43521	35421	53142
21345	32154	32415	43251	35241	53124
21354	23154	23415	42351	32541	53214
12354	23145	24315	24351	23541	52314
13254	32145	42315	23451	23514	25314
13524	31245	43215	32451	32514	25341
13542	31425	43125	34251	35214	52341
Extre.	31452	43152	34521	35124	53241
31542	34152	*Extre.*	34512	35142	*&c.*

In ringing terms the hunts are named in ſhort, as in the peals here prickt. The firſt which is named is here underſtood to be the whole-hunt, and the laſt the half-hunt. For inſtance, Treble is the whole-hunt, and fifth the half-hunt; and treble is the whole-hunt, and fourth the half-hunt, *&c.*

The Changes on ſix Bells.

THere are ſeven hundred and twenty changes to be rung on ſix bells. But the Learner may firſt practice ſome ſhorter peals.

The twenty four changes are thus rung. The treble muſt continually hunt through the reſt of the notes, and every time it leads

or lies behind them, an extream change must then be made between the two fartheſt notes from it. The treble hunts up (*a*). A change is made betwixt the two fartheſt notes from it, which are 2.3 (*b*). The treble hunts down (*c*). An extream change is made betwixt 5.6 (*d*), which method must be continued to the end. Any note may be made a hunt at pleaſure, and the extream changes may as well be made betwixt the two neareſt notes to the hunt. The Thirty-all-over are rung according to the method of the Twelve-all-over upon four bells, to which I refer.

	123456
	213456
	231456
a	234156
	234516
	234561
b	324561
	324516
	324156
	321456
c	312456
	132456
d	132465

The thirty ſix changes are thus rung. The treble hunts up into the third place, and then the two firſt notes make a change. The treble hunts down again to lead, and then the two notes in the 3*d* and 4*th* places do make a change, except the 2 lies next the treble, and then the two hindmoſt notes. The treble hunts up (*a*). The two firſt notes make a change (*b*).

	123459
a	213456
	231456
b	321456
c	312456
	132456
d	134256
e	314256
	341256
f	431256
g	413256
	143256
b	142356

The

The treble hunts down (*c*); the 2.4 make a change (*d*). In which manner the changes are to be made untill the treble leads, and the 2 (which may be term'd the half-hunt) lies next it, and then the extream change is made behind, as in the laſt change of this example, there being but two of theſe changes in the peal.

i	412356
	421356
k	241356
l	214356
	124356
m	124365
	&c.

In the Twelveſcore long-hunts, (otherwiſe called the *Eſquire's twelveſcore*) the *6th* and *5th* are hunts, and 1234 do make the twenty four changes. The *6th* and *5th* do hunt down by turns, and when either of them leads, one of the twenty four changes muſt then be made. The courſe and method of this is the ſame with that of the forty eight changes on five bells, to which I refer the Learner.

In the Sevenſcore and four, the treble and tenor are both hunts; and 2345 do make the twenty four changes, 2 being the hunt therein. The treble and tenor do both hunt at one and the ſame time, the one up, and the other down, croſſing each others courſe; and when one of them leads, the other

	123456
	213465
	231645
a	236145
	263415
	623451
b	632451

always lies behind; at which time one of the twenty four changes must be made. The extream changes in this peal are made in the same manner as before I have shewed upon four bells. The treble hunts up, and the tenor down (*a*). One of the twenty four changes is made (*b*). The treble hunts down, and the tenor up (*c*). Another of the twenty four changes is made (*d*). The treble hunts up, and the tenor down (*e*), *&c.* which method must be observed to the end.

	362415
	326145
c	321645
	312465
	132456
d	134256
	314265
	341625
e	346125
	364215
	634251
f	634521
	&c.

In the sixscore changes there is a whole-hunt, a half-hunt, and four extream bells. The half-hunt and four extream bells do make the twenty changes in the same manner as the twenty changes were made upon five bells with one hunt. *pag.*61. The whole hunt hath a continual motion through the other five notes, and every time it leads and lies behind them, one of the twenty changes must then be made. In this example, treble is the whole-hunt, 2 the half-hunt, and 3456 extream bells; therefore 23456 must make the twenty changes wherein 2 is the hunt, and every time it lies either before the four

extream

extream bells, or behind them, an extream change muſt then be made, which here ſhall be betwixt the two fartheſt extream bells from the half-hunt. The treble hunts up (*a*). One of the twenty changes muſt now be made, therefore 2 being the hunt in it, muſt begin its courſe through the extream bells (*b*). The treble hunts down (*c*); The half-hunt proceeds forward (*d*); the treble hunts up (*e*); the half-hunt proceeds forward in its courſe (*f*); the treble hunts down (*g*); the 2 proceeds forward (*h*); the treble hunts up (*i*); the half-hunt ſhould now proceed forward, but its courſe through the extream bells being finiſhed, therefore an extream change muſt be made betwixt 3. 4, which are the two fartheſt extream bells from it, (*k*). The treble muſt hunt down (*l*; the half-hunt muſt now go its courſe again through the extream bells, and firſt it moves down under the 6*th*, (*m*) *&c.*

	123456
	213456
	231456
a	234156
	234516
	234561
b	324561
	324516
	324156
c	321456
	312456
	132456
d	134256
	314256
	341256
e	342156
	342516
	342561
f	345261
	345216
	345126
g	341526
	314526
	134526
h	134562
	314562
	341562
i	345162
	345612
	345621
k	435621

which

which method must be continued to the end. Any note may be made a whole hunt at pleasure, or a half-hunt also. And the extream changes may be made betwixt the two nearest extream notes to the half-hunt; but withall observing to make all the extreams in one peal alike. There are four extream changes in each peal, and thirty changes distance from one to another.

	435612
	435162
l	431562
	413562
	143562
m	143526
	&c.

The method of the Seven hundred and twenty, hath an absolute dependency upon the method of the Sixscore changes on five bells; for five of the notes are to make the sixscore changes, and the sixth note hunts continually through them, and every time it leads or lies behind them, one of the Sixscore changes must then be made. The method of the Seven hundred and Twenty is in effect the same with that of the Sixscore: for as the Sixscore comprehended the Twenty four changes on four, and the Six on three; so likewise the Seven hundred and twenty comprehend the Sixscore changes on five, the Twenty four changes on four, and the Six changes on three. Therefore here must be three Hunts, and three Extream bells: the three Hunts are thus distinguished; one of them

them is call'd the *whole-hunt*, another the *half-hunt*, and the other the *quarter-hunt*. The Half-hunt, Quarter-hunt, and three Extream bells, are to make the Sixſcore changes; the Quarter-hunt and three Extream bells are to make the Twenty four changes, and the three Extream bells are to make the *ſix* changes, which are here alſo called *extream* changes, and made in the ſame manner as before I have ſhewed upon four bells. In this example here prickt, *treble* is the *whole-hunt*, 2*d* the *half-hunt*, 3*d* the *quarter-hunt*, and 4 5 6 *extream* bells. Now 'tis obſervable, that 4 5 6 are to make the ſix *extream* changes, which will divide the *ſeven hundred and twenty* into ſix equal parts; the 3 4 5 6 are to make the *twenty four* changes, wherein the 3*d* is the *hunt*, (but in the *ſeven hundred and twenty* 'tis call'd the *quarter-hunt*;) and and 2 3 4 5 6 are to make the *ſixſcore* changes, wherein the 2*d* is the *whole-hunt* (though in the 720 'tis call'd the *half-hunt*,) by which 'tis evident, that the *treble* continually hunts through theſe five 2 3 4 5 6, the 2*d* through the four 3 4 5 6, and the 3*d* through theſe three 4 5 6; which are aſſigned for the reſpective *hunts* to hunt through, from the beginning to the end of the peal. Firſt the *treble* hunts up (*a*). Now one of the *ſixſcore* changes

changes must be made, therefore the 2*d* being the *hunt* in the *sixscore*, must begin its course through the other four notes (*b*). The *treble* hunts down (*c*); the 2*d* proceeds in its course (*d*); the *treble* hunts up (*e*). The 2*d* proceedeth forward in its course (*f*); the *treble* hunts down (*g*); the 2*d* proceeds forward (*h*); the the *treble* hunts up (*i*); the 2*d*, which is the *half-hunt*, should now proceed forward, but having finished its course through the four bells, therefore the 3*d*, which is the *quarter-hunt*, must begin its motion through the *extream* bells (*k*). The *treble* hunts down (*l*). The *half-hunt* must now begin its course again through the four bells, and first therefore it moves down under the 6 (*m*). The *treble* must hunt up again, and then the 2*d* must move down under another bell, which method must be observed untill the 2*d* has moved quite down through

	123456
	213456
	231456
a	234156
	234516
	234561
b	324561
	324516
	324156
c	321456
	312456
	132456
d	134256
	314256
	341256
e	342156
	342516
	342561
f	345261
	345216
	345126
g	341526
	314526
	134526
h	134562
	314562
	341562
i	345162
	345612
	345621
k	435621
	435612
	435162
l	431562
	413562
	143562
m	143526

through the four bells again, and then the 3*d* muſt proceed forward by moving over another of the *extream* bells; which method muſt be obſerved in the motion of the three *hunts*, until the *quarter-hunt* hath moved up behind the *extream* bells, and then the *whole* and *half-hunts*, having gone their courſe again through the bells, an *extream* change muſt be made: after which the *whole*, *half*, and *quarter-hunts* proceed again in their courſe as before.

	123456						
	213456		345216			413526	
	231456		345126			431526	
	234156		341526			435126	
	234516		314526			435216	
	234561		134526			435261	
b	324561	*b*	174562		*b*	432561	
	324516		314562			432516	
	324156		341562			432156	
	321456		345162			431256	
	312456		345612			413256	
	132456		345621			143256	
b	134256	*q*	435621		*b*	142356	
	314256		435612			412356	
	341256		435162			421356	
	342156		431562			423156	
	342516		413562			423516	
	342561		143562			423561	
b	345261	*b*	143526		*b*	243561	
							243516

	243516	453216	452613
	243156	453126	452163
	241356	451326	451263
	214356	415326	415263
	124356	145326	145263
q	124536	*b* 145362	*b* 142563
	214536	415362	412563
	241536	451362	421563
	245136	453162	425163
	245316	453612	425613
	245361	453621	425631
b	425361	*q* 456321	*b* 245631
	425316	456312	245613
	425136	456132	245163
	421536	451632	241563
	412536	415632	214563
	142536	145632	124563
b	145236	*b* 145623	*Extrem.*
	415236	415623	125463
	451236	451623	
	452136	456123	
	452316	456213	
	452361	456231	
b	453261	*b* 452631	

The letter *b* ſtanding by the figures ſignifies *half-hunt*, that is, the motion of the *half-hunt* in that change; and likewiſe *q* the *quarter-hunt*. Here are the firſt *ſixſcore* changes of a *ſeven hundred and twenty*; wherein 'tis obſervable, that all the changes at *b* and *q*, being ſet down by themſelves in the ſame ſucceſſive order as they were made, that is, the 1 to be excluded, and the changes on the other

ther five figures to be ſet down directly under one another, and the *extream* change at laſt, it will thereby appear, that the five figures have made twenty changes of a *ſixſcore*, according to the method of the example on five bells, *pag.*63. with this only difference, theſe are made on 23456, and thoſe were made on 12345; but the five figures of each have both alike courſe, the 2*d* and 3*d* going the ſame courſe in this, as the *treble* and 2*d* did in that. Now whereas the *ſixſcore* changes here prickt down are a ſixth part of the *ſeven hundred* and *twenty*; ſo likewiſe are the *twenty changes*, here made by 23456, a ſixth part of the *ſixſcore*: and then conſequently, the *ſeven hundred* and *twenty* changes being all prickt, the *ſixſcore* changes on 23456 would plainly appear therein, in the ſame manner as twenty of them appear in this *ſixſcore*. Therefore more need not be ſaid of the method of the 720, ſince the method of the *ſixſcore* changes on five bells being well underſtood, will be a ſure and certain guide to the Learner: only this one thing farther; in ringing of this peal with any *hunts*, the ſecond *extream* change being made between the two bells which made the firſt *extream*, will always bring the bells round at the end of the *twelveſcore*. But after *twelveſcore* are made,

they

they cannot in course be brought round until the end of the 720.

The 720 changes may be rung one thousand nine hundred and twenty several ways, which is thus demonstrable. There are six times five figures to be produced out of six, and not twice five the same: as 12345. 12346. 12356. 12456. 13456. 23456. and with each five the *sixscore* changes may be prickt one hundred and sixty ways, as before I have shewed on five bells. Now to each five add the sixth figure which is wanting, as to 12345 add 6, to 12346 add 5, to 12456 add 3, to 13456 add 2, and to 23456 add 1. And the sixth figure which is added, being hunted through all the several *sixscores* which the other five figures make; for instance, the 6 through the 160 several *sixscores* which 12345 make, and the 5 also through the 160 several *sixscores*, which 12346 make, and the like of the rest; will produce as many *seven hundred* and *twenties* as there are *sixscores*, that is, six times one hundred and sixty, which amounts to nine hundred and sixty. Then the note that hunts through the other five, may hunt two ways through each *sixscore*, that is, up and down, which will double the former number, and make nineteen hundred and twenty in the whole.

AN

AN

INTRODUCTION

to the Knowledge of

CROSSE PEALS.

THeſe Peals are term'd *croſs* in reſpect of their intricate methods; wherein ſeveral notes moving at one and the ſame time, do thwart or *croſs* each other in their courſe and motion, ſome moving up, others at the ſame time down, gives this Denomination to the Peals. The end of pricking them is to make the compleat number of changes by a method differing from that of other Peals. For although five can be varied but 120 ways, and ſix but 720 *&c.* yet the methods by which they are varied, are differing, according to the ſeveral fancies of the Artiſt. And as order and method are the only *baſis* on which this Art is founded; ſo the skilful Artiſts, the better to effect the aforeſaid end, have thought fit in moſt peals to appoint one note to be as it were a Helm or Rudder,

by which the courſe of the peal is ſteered; which note is term'd a *Hunt*, and hath one conſtant uniform motion throughout the peal, differing from that of the other notes. The manner of its motion is continually through the other notes, that is, from leading to ſtrike behind, and from thence again to lead, which motion, firſt up and then down, is term'd one compleat Courſe. Some peals upon five bells, as *old Doubles*, *&c.* conſiſt of ſingle Courſes; there being ten changes in every ſingle Courſe, and twelve of thoſe Courſes in the peal. Other peals upon five bells, as *London Paradox*, *&c.* conſiſt of double Courſes; there being twenty changes in every double Courſe, and ſix of thoſe Courſes in the peal. Upon ſix bells there are alſo ſingle and double Courſes, *viz.* twelve changes in every ſingle Courſe, as in *Grandſire Bob &c.* and twenty four changes in every double Courſe, as in *Colledg Bob*, *&c.* the change wherein the *Hunt* leaves leading being the firſt change of every Courſe. Now the methods of theſe peals being well conſidered, they will be found more eaſie than at the firſt view they may ſeem to be; for the firſt Courſe of any Croſs Peal being judiciouſly viewed, the general method of the whole peal will thereby appear: for all the

courſes

Courſes in a Croſs peal do agree in theſe three reſpects. Firſt, in the motion of the *Hunt*; ſecondly, in the motion of the reſt of the notes; thirdly, in the making of the changes, which will plainly appear in the following peals, (ſome few changes in each peal only excepted, as hereafter I ſhall ſhew in my Directions to the ſeveral peals:) for proof of which I will give an inſtance in the peal of new Doubles upon five bells, theſe being the three firſt Courſes of the peal. Wherein 'tis obſervable, that the laſt change of the firſt Courſe which is 13524, I have ſet down again at the top of the ſecond Courſe; and likewiſe the laſt change of the ſecond Courſe which is 15432, I have alſo put at the top of the third courſe; which I have done for the plainer Demonſtration of what I here intend. So that the ten lowermoſt changes are the ten changes of each Courſe.

Firſt Courſe	*2d Courſe*	*3d Courſe*
12345	13524	15432
21354	31542	51423
23145	35124	54132
32415	53214	45312
23451	35241	54321
32541	53421	45231
25314	35412	54213
32154	53142	45123
31245	51324	41532
13254	15342	14523
13524	15432	14253

Firſt therefore, as to the motion of the *hunt*, the 1 which is the *hunt* moves directly up behind, where it lieth twice, and then

down again to lead, where it lieth alſo twice; as appears in each of theſe three Courſes, and the like alſo throughout the peal.

Secondly, as the 2*d*, 3*d*, 4*th*, and 5*th* bells move through the firſt Courſe, ſo the bells that lie in the 2*d*, 3*d*, 4*th*, and 5*th* places in the laſt change of every courſe, moves in the ſame manner alſo through the next following courſe. For inſtance; firſt, for the bell in the 2*d* place: in the firſt courſe the 2*d* bell moves down to lead, where it lieth twice, and then dodges until the *treble* comes down to it. So likewiſe in the ſecond courſe, the 3*d* bell lying in the 2*d* place moves down to lead, where it lies twice, and then dodges until *treble* comes down to it; and alſo in the third courſe, the 5*th* bell lying in the 2*d* place, moves down to lead where it lieth twice, and dodgeth until the *treble* moves down to it. Secondly, for the bell in the 3*d* place. In the firſt courſe the 3*d* bell moves down to lead, and there dodgeth untill the *treble* comes down to it: ſo likewiſe in the ſecond courſe the 5*th* bell lying in the 3*d* place moves down to lead, and there dodgeth untill the *treble* comes down to it: and alſo in the 3*d* courſe the 4*th* bell lying in the 3*d* place moves down to lead, and there dodgeth until the *treble* comes down to

it.

it. Thirdly, for the bell in the fourth place: In the firſt courſe, the fourth bell moves up behind, then down into the 3*d* place where it lieth twice, then up again behind; ſo likewiſe in the ſecond courſe, the 2*d* bell lying in the 4*th* place moves up behind, then down into the 3*d* place where it lieth twice, then up again behind; and alſo in the third courſe the 3*d* bell lying in the 4*th* place, moves therefore up behind, then down into the 3*d* place where it lieth twice, then up again behind. And ſuch uniform motion alſo hath the bell in the 5*th* place through every courſe.

Thirdly, that the changes in all the courſes of the peal are made alike, will here alſo plainly appear in the three courſes. For the firſt change of every courſe is made on the two firſt and two laſt bells; the ſecond change of every courſe is made on the four laſt; the the third is made on the four firſt; the fourth on the two firſt and two laſt; the fifth on the four firſt; the ſixth on the two firſt and two laſt; the ſeventh on the four firſt; the eighth on the four laſt; the ninth on the two firſt and two laſt; and the tenth ſingle.

And thus in every Croſs-peal the Courſes do all agree, firſt in the motion of the Hunt, ſecondly in the motion of the reſt of the notes, and thirdly in the making of the chan-

ges, as before I have ſhowed. So that theſe three things being well obſerved, will be very helpful both in pricking and ringing them; the firſt and third being moſt proper to direct the pricking of them, and the firſt and ſecond the ringing of them. Therefore if the Practitioner do but obſerve how the changes are made in the firſt courſe of a peal, wherein he muſt have particular regard to the motion of the Hunt, (which a little further help from the following directions to each peal, as to the making of *Extreams* and Bob-changes) he may eaſily prick down all the following Courſes of the ſame peal: and therefore in the following peals I have onely prickt down two or three of the firſt courſes for an example, and then have abridged the reſt of the peal by ſetting down only the changes that are made at the leadings of the Hunt. But note, there are ſome few *Cambridg*-peals upon five bells, wherein all the courſes of each peal do not agree in the aforeſaid three reſpects: For although as to the motion of the *whole-hunt* they do, yet in the motion of the reſt of the notes, and conſequently in the making of the changes they do not.

It being very difficult to begin the following peals with croſs *hunts*, that is, to make the

2*d*,

2*d*, 3*d*, 4*th*, *&c.* whole-hunts, I will therefore ſet down a general rule for making the firſt changes at the beginning of each Peal, wherein conſiſts the great difficulty. In any Croſs-peal the *whole-hunt* may move either up or down at the beginning; and the motion of the *whole-hunt* in the firſt courſe of each of the following peals will direct the firſt motion of any croſs *hunt*, and conſequently of making the firſt changes in that peal. For Example, admit the 4*th* were made the *whole-hunt* in the peal called *Old doubles and ſingles* upon five bells, and to *hunt* up at firſt: now to know how to make the firſt changes, obſerve how the change is made wherein the treble (which is there the *whole-hunt*) moves up out of the 4*th* place, and in the ſame manner muſt the change be made wherein the 4*th* bell alſo moves up out of that place: therefore as the change wherein the treble moves up out of the 4*th* place is a *ſingle* behind; ſo likewiſe muſt the change wherein the 4*th* bell moves up out of that place, be alſo a *ſingle* behind thus, 12354: and then as the next change wherein the treble lieth ſtill behind is double of the four firſt bells; ſo likewiſe the next change wherein the 4*th* bell lieth ſtill behind, muſt alſo be made on the four firſt, thus, 21534, *&c.* Or admit the 4*th*

were to hunt down at the beginning, then obſerve how the change is made wherein the treble hunts down out of the *4th* place, and ſo in like manner muſt the change be made wherein the *4th* hunts alſo down out of that place: therefore as the change wherein the treble hunts down out of the *4th* place, is double of the four firſt bells; ſo likewiſe muſt the change wherein the *4th* bell hunts down out of that place, be alſo double of the four firſt thus, 21435; then as the *treble* makes a *ſingle* when it moves down out of the *3d* place, ſo likewiſe muſt the *4th* next make a ſingle change in moving down out of the *3d* place thus 24135, *&c.* which obſervations will guide the making of the firſt changes in in any croſs peal with any Hunts; but obſerve whenſoever the firſt change of any peal hapens to be ſingle, it muſt be made at the back-ſtroke to prevent cutting compaſs; and the like when a double change happens firſt in a peal of Triples and Doubles. And moreover by the way obſerve, that all the following peals are ſo prickt, that in ringing them at half-pulls, if the firſt change of each peal is made at the fore-ſtroke, the ſingle changes in each peal will always be made at the back-ſtroke; and alſo the double changes in Triples and Doubles, excepting ſome few Single

in

in two or three peals. But when it happens that the firſt change of a peal is made at the back-ſtroke, then conſequently the bells at the end of the peal will come round at a fore-ſtroke change.

In ſuch peals on five bells where *ſingles* are made in the 3*d* and 4*th* places at the leadings of the *whole-hunt*, the *extreams* may there be made three ways in each peal; *viz.* every time the *half-hunt* lieth next the *whole-hunt*; ſecondly, every time it lieth behind; thirdly, every time the *half-hunt* lieth next the *whole-hunt*, and alſo behind: in this laſt way there are ſix *extreams* in each peal, but in other ways only three in each; the *extreams* being always made when the *whole-hunt* leads, and betwixt the two fartheſt *extream* bells from the *half-hunt*.

In ſuch peals upon five bells wherein there are three *extreams*, and made in the 3*d* and 4*th* places at the leadings of the *whole-hunt*; the reſt of the *ſingles* at the leadings of the *whole-hunt* may be made two ways in each peal, *viz.* either in the 2*d* and 3*d*, or the 4*th* and 5*th* places; if they are made in the 2*d* and 3*d*, then the *extreams* muſt be made when the *half-hunt* lyeth behind; but if the *ſingles* are made behind, then the *extreams* muſt be made when the *half-hunt* lieth next the *whole-hunt*,

hunt, the *extreams* being always made between the two next *extream* bells to the *half-hunt*.

In all the following peals the figures ſtanding by themſelves at the title of the peal, are the *hunts* in the peal there prickt: for inſtance, in the firſt *croſs-peal* upon five bells call'd *Old doubles and ſingles*, the two figures ſtanding thus 1 *and* 2, are the *hunts* in that peal; 1 is the *whole-hunt*, 2 the *half-hunt*, and the like of the reſt.

All peals of *doubles* upon five bells, which go ſixty changes compleat without any *ſingle*, by making of two *extreams* they will go 120. And alſo all peals of *doubles* upon ſix bells, and *triples* and *doubles* upon ſix, which go 360 changes without any *ſingle* or *extreme*, by making of two *extreams* they will go 720. The *extreams* in all theſe compleat peals proceeding from one and the ſame cauſe, are therefore to be made after one manner, according to this general and infallible rule: Whereſoever any two of the *extream* bells are in courſe to make a change, thoſe two bells by lying ſtill will effectually make the *extream*. So that the making of the *extream* in *doubles* upon five bells, neceſſitates the making of a *ſingle change* at the ſame time, by reaſon that the two *extream* bells which ſhould

ſhould contribute to the making of the *double* change, do lie ſtill; ſo that the *ſingle* change is accidental, and very improperly called the *extream.* When the *extreams* in *triples* and *doubles* upon ſix bells are made at *double* changes, then there happens two *ſingles* in the peal; but when they are made at *triple* changes, then thoſe two changes will become *double*, and conſequently the 720 will then go compleat without any *ſingle.* Upon five bells the firſt *extream* muſt be made within ſixty changes from the beginning, and the ſecond *extream* juſt ſixty changes from the firſt. Upon ſix bells the firſt *extream* muſt be made within 360 changes from the beginning, and the ſecond *extream* juſt 360 changes from the firſt. The eaſieſt way in practice, is to make the *extremes* at the leadings of the *whole-hunts*; wherein it may be obſerved as a general rule, That in all peals upon ſix bells, where the *half-hunt* dodgeth behind at the *bobs*, there the firſt *extream* may be made either the firſt, ſecond, or third time: the *half* and *quarter-hunts* dodg together behind, and then the ſecond *extream* muſt be made the third time thoſe two bells dodg again together behind, after the firſt *extream* is made. And alſo in all ſuch peals upon ſix bells, where the *doubles* at the leadings of the

whole-

whole-hunt are made on the four middle bells, there the firſt *extream* may be made either the firſt, ſecond, or third time the *half* and *quarter-hunts* do make a change in the 2*d* and 3*d* places, and then the 2*d* *extream* muſt be made the third time thoſe two bells come there again to make a change after the firſt *extream* is made. The *ſingles* at all theſe *extreams* muſt be made by the *half* and *quarter-hunt*. The firſt *extream* in any peal may alſo be made at any place, where two of the *extream* bells are in courſe to make a change according to the preceding general rule; and then the making of the ſecond *extream* may be guided by obſervations taken from the changes at the leadings of the *whole-hunt*: for at the leadings of the *whole-hunt* the *half* and *quarter-hunts* always come together to make a change in one place, juſt at 120 changes diſtance from one another throughout each peal. Now as the ſecond *extream* muſt be made juſt 360 changes from the firſt, ſo the making of it may thus be guided: Look how many changes, or elſe how many leadings of the *whole-hunt* the firſt *extream* is made after the *half* and *quarter-hunts* have made a change together, ſo many changes or leadings of the *whole-hunt* muſt the ſecond *extream* be made, after the third following time that thoſe two bells

bells do make a change in the ſame place again. And likewiſe in all peals, where there are ſingle and double *bobs*, the ſame obſervations will alſo hold good, in making the *extreams* either after the ſingle or double *bobs* as before; there being likewiſe 120 changes diſtance between the ſingle *bobs* and alſo between the double *bobs*: ſo that if the firſt *extream* is made at a ſingle *bob*, the ſecond muſt then be made at the third following ſingle *bob*, and the like alſo at double *bobs*. And ſuch kind of obſervations, according to the nature of the peal, will guide the making of the ſecond *extream* in any peal, either upon five or ſix bells. Wherein 'tis obſervable, that the ſecond *extream* muſt always be made by the ſame two bells, and in the ſame place where the firſt was made, which two bells will in courſe lie apt for that purpoſe; and the reſt of the bells will alſo in courſe lie in the ſame places at the ſecond *extream* where they lay at the firſt. After the making of the firſt *extream*, the method of the peal goeth on as if no *extream* had been made; and alſo after the making of the ſecond *extream* if any remaineth, it alſo goes on, until in courſe the bells come round.

In all compleat peals of *doubles* upon ſix bells there may alſo moveable *extreams* be made,

made, which are made according to this rule; whereſoever any two of the *extream* bells are together, and in courſe to lie ſtill, thoſe two bells by making a change will thereby make the *extream*, which is as effectual as the fixed *extream*, the reaſon and ground of both being one and the ſame. There are alſo two of theſe *extreams* in each peal, and the ſecond always made 360 changes from the firſt, and the making of it guided by ſuch kind of obſervations as before. When moveable *extreams* are made, then there will be two triple changes in the 720; but when fixed *extreams* are made, then two *ſingles*.

The art of *croſs-pricking* may receive a being from this conſideration. As every compleat peal of plain changes upon one number comprehends the compleat peals on all leſſer numbers; ſo likewiſe every compleat *croſs-peal* muſt of neceſſity do the like, although their croſs courſe permits it not to be done ſo regularly and demonſtrably as the former. From whence may be inferr'd, that every note in a *croſs-peal* muſt of neceſſity lie as many times in one place, as the reſt of the notes are capable of making changes; and alſo that two or more of the notes muſt jointly lie in the ſame places as many times, as the remaining number are alſo capable of making changes;

ges: this being a certain touchſtone to prove all *croſs-peals* after they are prickt, and muſt be held as a principle on which to ground ſuch methods of pricking, that the courſe of all the notes may demonſtrably tend to produce thoſe effects. And from hence it is, that the whole *hunt* immediately derives the manner of its uniform motion through the courſes of each peal. And the changes in every courſe are as ſo many guides to conduct the reſt of the notes in ſuch ſort, that they may be prepared to lie at the laſt change of the courſe in apt places for eaeh ſucceeding courſe to receive them, and to perform the like. Now as the changes in all the courſes of a peal are made alike, except as before; ſo in the compoſing of *croſs-peals*, by pricking of one courſe may ſoon be diſcovered, whether or no a compleat Peal will from thence ariſe.

Croſs Peals.

The Twenty four, Doubles and Singles on four Bells.

THis peal conſiſts equally of *double* and *ſingle* changes; one change is *double*, the next *ſingle*, and ſo throughout. 1 is here the *hunt*, and 2.3.4 *extream* bells. Every *double* change is made on the two firſt and two laſt bells, and every *ſingle* on the two middle bells, except when the 1 leads, and then behind which is call'd *extream*. All the bells have a direct Hunting-courſe up and down until 1 leads, and then the bell in the ſecond place lyeth ſtill, whilſt the two hind bells make a dodg; which being made, all the bells proceed again in their Hunting courſe. The three changes of (*a.b.c*) are the three *extream* changes.

There are three ways to make the *extream* changes. Firſt, every time the

1234
2143
2413
4231
4321
3412
3142
1324
a 1342
3124
3214
2341
2431
4213
4123
1432
b 1423
4132
4312
3421
3241
2314
2134
1243
c 1234

the *hunt* leads, as in the peal here prickt; ſecondly, every time it lies behind; thirdly, every time it leads and lies behind: in this laſt way there are ſix *extream* changes in the peal, but in the other two ways, only three *extreams*; the *extream* changes muſt always be made betwixt the two fartheſt bells from the *hunt*. Any bell may *hunt* at pleaſure, and it may move either up or down at the beginning of the peal. If the 1 or 3*d* do *hunt* down, or the 2*d* or 4*th* up at the beginning, the firſt change muſt be *ſingle*, and made of the back-ſtroke (if 'tis rung at half-pulls) to prevent cutting compaſs; but if either of thoſe bels do *hunt* the contrary way, then the firſt change muſt be double.

Old Doubles and Singles,
1 *and* 2.

ONE change is *double*, the next *ſingle*, and ſo by turns. The treble hath a direct hunting courſe, as in plain changes. Every *double* change is on the four firſt bells, and the treble is one of the two bells that makes every *ſingle* change, except when it leads, and then the *ſingle* is in the 3*d* and 4*th*

places; but when 2 lies next the treble, then the *single* is behind, which is call'd *extream*. Every time the treble leaves leading, the two first bells continue slow dodging, untill the treble comes down and displaceth them. And when the treble moves down out of the 5*th* place, the bell that comes into it lies still there, untill the treble comes thither again, except when the *extream* change is made behind. Every bell lies twice together in the 3*d* and 4*th* places, except when the treble leads, and also when it hinders them in hunting.

12345	51432	——
21435	15342	12543
24135	15432	*Extre.*
42315	——	12534
32351	13254	——
24531	13524	13425
24513	——	13245
42153	12435	——
41253	*Extre.*	14532
14523	12453	14352
14253	——	——
41523	15324	15243
45123	15234	15423
54213	——	——
54231	13452	12354
45321	13542	*Extre.*
45312	14235	12345
54132	14325	

This old peal may be rung by a new course, which differs from the former only in the *single* changes that are made every time the *whole-hunt* leads, *viz.* every *single* may be made either in the 2*d* and 3*d*, or 4*th* and 5*th* places. If they are made in the 2*d* and 3*d*, then the *extreams* must be made when the *half-hunt* lies behind; but if they are made in the 4*th* and 5*th* places, then the

the *extreams* muſt be made when the *half-hunt* lies next the *whole-hunt*, the *extreams* being always made in the 3*d* and 4*th* places.

London *Paradox.*
1 *and* 2.

ONE change is *double*, the next *ſingle*, and ſo by turns. The motion of the treble is after this manner; in hunting up, firſt, it makes a dodg in the 2*d* and 3*d* places, then it lies twice in the 4*th* place, and four times behind; in which manner alſo it hunts down again, and then leads four times. The reſt of the bells have a like courſe and motion with that of the treble, untill the treble leads. Now 'tis obſervable, that every *ſingle* change is made in the 2*d* and 3*d* places until the treble leads, and then in the 3*d* and 4*th* places; but when 2 lies next the treble, then an *extream* behind. The changes

12345	*Extre.*
21435	12453
24135	
21453	14235
24153	14325
42513	13452
45213	13542
42531	
45231	15324
54321	15234
53421	12543
54312	*Extre.*
53412	12534
35142	
31542	15243
35124	15423
31524	14532
13254	14352
13524	
15342	13425
15432	13245
	12354
14523	*Extre.*
14253	12345
12435	

at the leadings of the *whole-hunt* have an absolute dependency upon the courſe of the *twenty four* changes, *doubles* and *ſingles* upon four bells-; and the *extreams* to be made as many ways as in that peal, which are here guided by the motion of the *half-hunt*.

Phœnix

5 *and* 4.

ONE change is *double*, the next *ſingle*, and ſo by turns. Every bell leads twice, and lies behind four times. Every *ſingle* is made in the 2*d* and 3*d* places, until the 5*th* comes behind, and then in the 3*d* and 4*th* places; but when the 4*th* leads, (the 5*th* being behind) the *ſingle* is in the 2*d* and 3*d* places.

12345	54123
21354	51423
23154	15432
32513	14532
35214	41352
53241	43152
52341	34125
25431	34215
24531	43125
42513	41325
45213	

London *pleaſure.*

1 *and* 2.

THis peal in the former printing of it was prickt another way, but I have here

here tranſpoſed that Courſe, which in my opinion renders it more eaſie and practical.

12345	23154	35142	15432
21345	21354	35412	
23145	12354	35421	14532
32145	13254	53421	14523
31245	13524	53412	14253
31425	13542	53142	12453
34125	31542	51342	12435
34215	31524	15342	14235
34251	31254	15324	14325
32451	32154	15234	14352
32415	32514	12534	
23415	32541		13452
23451	35241	12543	13425
23541	35214	15243	13245
23514	35124	15423	12345

Mr. Tendring's *Peal, call'd* Grand Paradox.

1 *and* 5.

ONE change is *double*, the next *ſingle*, and ſo by turns. The motion of the *whole-hunt* is after this manner: firſt, it moves up into the 2*d* and 3*d* places, lying twice in each; then it moves up and makes a dodg behind, and then lieth ſtill one change in the

5*th* place; then it makes another dodg behind, and so moves down into the 3*d* and 2*d* places lying twice in each as before, and then leads four times. Every other bell hath a like course and motion with that of the treble until the leadings of the treble, and then observe, that every time the treble goeth to lead and leaves leading, the *double* change is made on the two first and two last bells, except when it goeth to lead if the *half-hunt* lies next it, and then not. Every bell leads four times, and every *single* is made behind. The change wherein each bell leaves leading, is always made on the four first bells, except as before.

12345	45321	21534	43152	13524	14523
21354	45312	25143	43125	13542	———
21345	54132	25134	41352	———	13254
23154	54123	52314	41325	12453	23245
23145	51432	52341	14352	12435	12354
32415	51423	53214	14325	14253	12345
32451	15243	53241	13452	14235	———
34215	15234	35421	13425	———	
34251	12543	35412	———	15432	
43521	12534	34521	15324	15423	
43512	21543	34512	15342	14532	

What

What you pleaſe, *Doubles and Singles.*

EVery bell leads four times, and lies behind twice, except when the *extream* is made behind; and twice in the ſecond place, except when the *extream* is made before: and note, when the treble is before the fourth ſtroke, the *ſingle* is in the 2*d* and 3*d*, the next time the *ſingle* is behind; but at other times the *ſingle* is in the 3*d* and 4*th* places. When any bell leaves leading the *double* change is on the two firſt and two laſt, and the *extreams* are made by turns, firſt behind, then before, and ſo on to the end, for there are ſix *extreams*.

12345	34521	21435	45231	14352	14235
21354	34251	21345	54213	14532	14325
21534	43215	23154	54123	15423	13452
25143	43125	23514	51432	*extre.*	*extre.*
25413	41352	32541	51342	15432	13425
52431	41532	32451	15324	13254	
52341	14523	34215	15234	13524	12534
53214	14253	34125	12543	15342	12354
53124	12435	43152	*extre.*	*extre.*	13245
35142	*extre.*	43512	15243	13542	*extre.*
35412	12453	45321			12345

Old Doubles.

1 *and* 2.

THE changes are all *double*, except one *single* every time the treble leads. The treble hath a perfect hunting course as in plain changes, and every other bell hath a like hunting course with that of the treble until the treble leads, and then a *single* is made in the 3*d* and 4*th* places; but when the 2 lies next the treble, the *single* is behind which is call'd *extream.*

12345	13254	51432	12453	15234	14532
21435	13524	15342	———	———	14352
24153	31254	15432	14235	12543	———
42513	32145	———	14325	*extre.*	13425
45231	23415	14523	———	12534	13245
54321	24351	14253	13452	———	———
53412	42531	———	13542	15243	12354
35142	45213	12435	———	15423	*extre.*
31524	54123	*extre.*	15324	———	12345

New Doubles.

1 *and* 2.

THE changes are all *double*, except one *single* at every leading of the treble. The tre-

treble hath a perfect hunting courſe as in plain changes; and when it moves up from leading, the two firſt bells dodg untill it comes down again and diſplaceth them. Every bell that comes into the 3*d* place lies there twice, and then moves up behind; but the bell which lies there when the treble leaves leading, moves down. Every bell lies twice behind, except at the changes wherein the treble goeth to lead and leaves leading. Every time the treble leads, a *ſingle* change is then made in the 3*d* and 4*th* places; but when the 2 lies next the treble, an *extream* behind.

12345	13254	51324	12453	——	14352
21354	13524	15342	——	12543	——
23145	31542	15432	14235	*extre.*	13425
32415	35124	——	14325	12534	13245
23451	53214	14523	——	——	——
32541	35241	14253	13452	15243	12354
23514	53421	——	13542	15423	*extre.*
32154	35412	12435	15324	——	12345
31245	53142	*extre.*	15234	14532	

Reding Doubles.

1 *and* 2.

THE treble hath a direct hunting courſe as in plain changes, and when it moves up from leading the two firſt bells dodg until it comes

comes down again and displaceth them; and whilst they dodg before, every bell that comes down into the 3*d* place lies there twice, and then moves up again behind. But after the dodging all the bells go a direct hunting course up and down, until the dodging again hindreth them as before. Every bell lies twice behind, except when the treble leaves leading if the 2*d* lies next it, and then the *double* is made on the two first and two last bells; by which means the two hind-bells then make a dodg, which happens in course once in twenty changes, that is, every second time the treble leaves leading. By this method it will go sixty changes, and then an *extream* must be made. The *extreams* in this peal may be made according to the preceding general rule set down in the *Introduction*. Here the first *extream* is made at the end of sixty changes, the bells lying 1 3 2; and when they come to lie so

12345	12534	12354
21354	31543	——
23145	25134	13524
32415	52314	15342
23451	25341	——
32541	52431	14253
23514	25413	12435
32154	52143	——
31245	51234	14325
13425	15324	13452
14352	13542	——
41532	——	15234
45123	14235	12543
54213	12453	——
45231	——	15423
54321	14523	14532
45312	15432	——
54132	——	13245
51423	13254	*extre.*
15243	*extre.*	12345

ſo again, the ſecond *extream* muſt be made; the *extream* is made behind, two of the *extream* bells lying there, and the *ſingle* is made in the 2*d* and 3*d* place at both the *extreams*.

Grandſire.

1 *and* 5.

THE treble hath a direct hunting courſe as in plain changes, and every other bell hath alſo a like hunting courſe with that of the treble except when the *bobs* hinder. The *bobs* are double changes, and made on the two firſt and two laſt bells according to this rule, *viz.* every time the *treble* goes to lead and leaves leading, a *bob*-change is then made, except the 5*th* lying next it makes a change there with it, and then not. Now 'tis obſervable, that once in twenty changes, that is, at every ſecond leading of the treble, the 5*th* lies next it, and conſequently there is but one *bob*-change then to be made, but at other times two; ſo that at one leading of the treble there is but one *bob*-change made, at the next leading there are two, and ſo ſucceſſively by turns, which for diſtinction may be call'd *ſingle* and *double bobs*. The two bells that dodg behind at a *bob* continue there dodg-

dodging until the treble comes up and diſplaceth them, and at every *bob-change* the bell in the 3*d* place lieth ſtill, and then moves down to lead. By this method it will go ſixty changes; and to carry on the courſe *extreams* muſt be made, there being two in the peal. The manner of making an *extream* I have at large ſhewed in the *Introduction*, and the *extreams* may here be made in any place according to the general rule there ſet down. The eaſieſt way in practice is to make them at the leadings of the treble; at any ſingle *bob* it may be made behind, two of the *extream* bells lying there, and to lie ſtill whilſt the bells in the 2*d* and 3*d* places do make the *ſingle* change: at any double *bob* it may be made in the 2*d* and 3*d* places, ſo that the *ſingle* muſt there be made behind.

12345	52143	52431
21354	51234	25341
23145	15324	23514
32415	13542	32154
34251	31524	31245
43521	35142	13254
45312	53412	*extre.*
54132	54321	13245
51423	45231	
15243	42513	15342
12534	24153	13524
21543	21435	
25134	12453	14253
52314	14235	12435
53241	41253	
35421	42135	15234
34512	24315	12543
43152	23451	
41325	32541	13452
14352	35214	14325
13425	53124	
31452	51342	15423
34125	15432	14532
43215	14523	
42351	41532	12354
24531	45123	*extre.*
25413	54213	12345

If

If the first *extream* is made at the single *bob*, the second must be made at the third following single *bob*; or if the first is made at a double *bob*, the second must be made at the third double *bob* following, as in this peal here prickt, where the first *extream* is made at a double *bob*, and the second also made at the third following double *bob*.

This peal will go with any *hunts*, and to begin it on the four hind bells; but then in ringing it at half-pulls, the first change being made at back-stroke to prevent cutting compass, the bells at the end of the peal will come round at a fore-stroke change. Therefore the better way is to begin it on the four first bells, which may also be done with any *hunts*, excepting 1.3, 1.5. and 2.3, 2.4, 2.5, wherein the first change of each may be a *bob*. And observe, that in any way of beginning it, the bells must all proceed in such a perfect hunting course as the first change directs them, until the first *bob* comes to be made.

Old Triples and Doubles.

ONE change is *triple*, the next *double*, and so by turns, except one *single* at the end of every sixty changes. Every *triple* change

change is made on the two first, the two middle, and two last bells; and every *double* is made on the four middle bells, except when the *hunt* leads and then on the four hind bells. Treble is here the *hunt*, and hath a direct hunting course up and down as in plain changes; the rest of the bells have also a direct hunting course up and down except when the treble leads, and then each bell that was hunting up (except that in the 2*d* place) makes a dodge with the next bell below it, and then proceeds forward again in its course up; and each bell which at the same time was hunting down, makes a dodg with the next bell above it, and so proceedeth forward in its course down; which method will carry on the peal five *courses* of the *hunt*, that is sixty changes as they are here prickt.

In the 120 there is also a *half-hunt*; and when the *whole-hunt* leads and the *half-hunt* lies next it, a single change must then be made, either in the 3*d* and 4*th*, or 5*th* and 6*th* places; but observing when the *half-hunt* comes again to lie next the *whole-hunt*, another single change must be made in the same

123456	135264
214365	312546
241635	321456
426153	234165
462513	243615
645231	426351
654321	462531
563412	645213
536142	654123
351624	561432
315264	516342
132546	153624

ſame place where the firſt was made. Theſe ſingle changes are called *extreams*, there being two in every *ſixſcore*, and the laſt of them always falls out in courſe to be made juſt 60 changes from the firſt, that is, at the fifth leading of the whole *hunt* after the firſt *extream*.

In the 240 there is alſo a *half-hunt*; and when the *whole-hunt* leads, and the *half-hunt* lies next it, a ſingle change being then made in the 4*th* and 5*th* places, will bring the bells round at *twelveſcore*, there being four *ſingles* in the peal, one of which falls in the courſe at the end of every ſixty changes.

156342	325461
513624	234516
531264	243156
352146	421365
325416	412635
234561	146253
243651	142635
426315	416253
462135	461523
641253	645132
614523	654312
165432	563421
164523	536241
615432	352614
651342	325164
563124	231546
536214	213456
352641	124365

In the 720 there is a whole, half, and quarter *hunt*, and every time the *whole-hunt* leads and the *half-hunt* lies next it, a ſingle change muſt then be made in the 4*th* and 5*th* places as in the *twelveſcore*; but when the *quarter-hunt* lies next the *half-hunt*, that is, when the three *hunts* come together before, (which always happen at the end of every *twelveſcore*) then the *ſingle* muſt be made behind, which is call'd *extream*, there being three of them in the peal.

The

The *ſevenſcore and four* triples and doubles are the ſame with the former except at the leadings of the treble, and then a *ſingle* is always made in the 3*d* and 4*th* places; but when the 2 lies next the treble, an *extream* is made in the 4*th* and 5*th* places. This peal is grounded on the *twenty four* doubles and ſingles, the four middle bells making them at the leadings of the treble.

Granäſire Bob.

1, 2 *and* 4.

THE general method of this peal is the ſame with that next before, but with this difference; whereas in that peal *ſingles* were made at the end of every ſixty changes to carry on the courſe, in this there are *double* changes made in their ſtead, which are called *Bob*-changes, and made when the treble leads in the 2*d* and 3*d* and the 5*th* and 6*th* places, whereas at other times the *double* is there made on the four hind bells.

The Practitioner may obſerve theſe rules in the ringing of it, *viz.* whatſoever bells he followeth when he hunteth up, he muſt follow the ſame bells again, and in the ſame order, the next time he hunts down, as in theſe chan-

changes here prickt, where the treble in hunting up firſt follows 2, then 4, and then 6; and when it comes behind, firſt it follows 2 again, then in its hunting down it follows 4 and 6 in the ſame order as when it hunted up; which is alſo obſerved in the ringing of any other bell, but with this difference betwixt the *whole-hunt* and the reſt of the bells, *viz.* Every time the *whole-hunt* leaves the *treble's* place and hunts up, it followeth different bells from what it did in its former hunting up, as may be ſeen in this example: where in its firſt hunting up it firſt follows 2, then 4, then 6; whereas in the next hunting up it firſt follows 3, then 2, then 4. But the firſt time any other bell leads after a *bob*, whatſoever bells it then follows in its hunting up, it follows the ſame bells likewiſe and in the ſame order every time it hunts up; and conſequently every time it hunts down unto the next *bob*; as in this example, where 2 in its firſt hunting up, firſt follows 4, then 6, then 5, and likewiſe when it next hunts up it follows 4 6 5 as before, *&c.* But when the *whole-hunt* is the ſecond bell which he follows in hunting up,

123456
214365
241635
426153
462513
645231
654321
563412
536142
351624
315264
132546
135264
312546
321456
234165
243615
426351
462531
645213

he muſt follow it again when he next lies behind.

'Tis obſervable, that at every leading of the treble the two hind bells dodg; andwhenſoever the *half-hunt* dodgeth there, a *bob* muſt then be made, except the *quarter-hunt* dodgeth there with it, and then not; which is an infallible rule, by which he that rings the *half-hunt* may always give notice of the *bobs* as well when the peal is inverted, as in the ordinary way of ringing it. The *bobs* fall out in courſe ſingle and double, the one ſingle, the next double, and ſo by turns; there being three ſingle *bobs* and three double *bobs* in the *eighteenſcore*, and conſequently ſix of each in the 720.

The aforeſaid method being obſerved, will carry on the courſe of the peal to the end of *eighteenſcore*, which is juſt half the 720, and then it terminates, as appears in the *eighteenſcore* here prickt: but by making an *extream* that number may be doubled; for then *eighteenſcore* changes more will go in courſe according to the former method; and another *extream* being likewiſe made at the end of the laſt *eighteenſcore* will compleat the 720. The manner of making an *extream* I have ſhewed at large in the *Introduction*, *pag.* 90. where I have alſo ſet down a general rule

for

for making them, to which I refer.

The first *extream* may be made either the first, second, or third time that the half and quarter *hunts* dodg behind; or else at the first, second, or third single *bob*; at either of which places the *single* must be made behind.

123456	325416	342516	143526	
214365	234561	324156	*bob.*	124536
241635	243651	231465	134562	125463
426153	426315	213645	315426	
462513	462135	126354	351246	152643
645231	641253	123645	532164	156234
654321	614523	216354	523614	
563412	165432	261534	256341	165324
536142	*bob.*	625143	265431	163542
351624	156423	652413	624513	
315264	514632	564231	642153	136452
132546	541362	546321	461235	*bob.*
135264	453126	453612	416325	163425
312546	435216	435162	143652	
321456	342561	341526	*bob.*	136245
234165	324651	314256	134625	132654
243615	236415	132465	316452	
426351	263145	134256	361542	123564
462531	621354	312465	635124	125346
645213	612534	321645	653214	
654123	165243	236154	561241	152436
561432	162534	263514	526431	154263
516342	615243	625341	254613	
153624	651423	652431	245163	145623
156342	564132	564213	421536	*bob.*
513624	546312	546123	412356	154632
531264	453621	451632	143265	
352146	435261	415362	142356	145362

bob.	——	*bob.*	——	146532
154326	162345	135426	162453	*bob.*
——	163254	——	164235	164523
145236	——	153246	——	——
142563	136524	152364	146325	146253
——	135642	——	*bob.*	142635
124653	——	125634	164352	——
126435	153462	126543	——	124365

Here are *eighteenscore* changes wanting one, which one if it were made double as the former, would bring the bells round, therefore an *extream* must be made as in this change 123465, the two hind bells making the *extream*, and the bells in the 3*d* and 4*th* places making the *single*. Now in regard that this *extream* is made the second time the *whole-hunt* leads after a double *bob*, therefore the second *extream* must be made the second time the *whole-hunt* leads after the third double *bob* following.

This peal may be rung with any *hunts*, and to begin the changes *triple* and *double* as in this here prickt.

Fifty three LONDON-*Peals upon Five, Six, Seven, and Eight Bells, compoſed by* F. S.

Crambo.

THE changes are all *ſingle*; it hath a perfect courſe, and may be prickt many ways.

12345	42513	52431	32154	35421	15243
21345	45213	25431	23154	35412	51243
21435	45231	25413	23145	53412	51234
24135	54231	25143	32145	53142	15234
24153	54321	52143	32415	35142	15324
42153	45321	52134	23415	35124	13524
42135	45312	25134	23451	53124	13542
42315	54312	25314	32451	51324	31542
24315	54132	52314	32541	51342	31524
24351	45132	52341	35241	15342	31254
42351	45123	25341	35214	15432	13254
42531	54123	23541	53214	51432	13245
24531	54213	23514	53241	51423	31245
24513	52413	32514	53421	15423	31425
					13425

13425	34215	43152	41523	12453	12354
13452	34251	41352	14523	21453	12345
31452	43251	41325	14253	21543	
34152	43521	14325	41253	12543	
34125	34521	14352	41235	12534	
43125	34512	14532	14235	21534	
43215	43512	41532	12435	21354	

The Primrose.
1 *and* 2.

THE treble hath a perfect courſe as in plain changes. And when it hunts up out of the 2*d* place it makes two *ſingles* together, and the like when it hunteth down. When it leads, the *ſingle* is in the 3*d* and 4*th* places, except when 2 lies next it, and then an *extream* behind. Every bell (except the treble) leads four times, and lies ſtill behind untill the treble diſplaceth it, except at the *extream.*

12345	51432	15234
21435	15342	——
24135	15432	12543
24315	——	*Extre.*
23451	14523	12534
32541	14253	——
35214	——	15243
35124	12435	15423
31524	*Extre.*	——
13254	12453	14532
13524	——	14352
31254	14235	——
32154	14325	13425
32514	——	13245
35241	13452	——
53421	13542	12354
54312	——	*Extre.*
54132	15324	12345

New

Orpheus.

12345	14253	34125	54312	32541	52134
13254	41523	43152	53421	23514	51243
13245	41532	43125	53412	23541	51234
31254	45123	34215	35421	25314	15243
31245	45132	34251	35412	25341	15234
32154	54123	32415	53142	52314	12543
32145	54132	32451	53124	52341	12534
23154	51423	23415	51342	25431	21543
23145	51432	23451	51324	25413	21534
21354	15423	24315	15342	24531	12354
21345	15432	24351	15324	24513	12345
12435	14523	42315	13542	42531	
12453	14532	42351	13524	42513	
21435	41352	43215	31542	45231	
21453	41325	43251	31524	45213	
24135	14352	34521	35142	54231	
24153	14325	34512	35124	54213	
42135	13452	43521	53214	52431	
42153	13425	43512	53241	52413	
41235	31452	45321	35214	25143	
41253	31425	45312	35241	25134	
14235	34152	54321	32514	52143	

One change is *double*, the next *single*, and so by turns.

New Doubles and Singles.

1 *and* 2.

ONE change is *double*, the next *ſingle*, and ſo by turns. The treble hath a direct hunting courſe up and down as in plain changes, and every time it goeth to lead and leaves leading, the change is *double* on the two firſt and two laſt bells, the reſt of the *double* changes are on the four firſt. The treble is one of the two bells that makes every *ſingle* change except when it leads, and then the *ſingle* is made in the 3*d* and 4*th* places; but when the 2 lies next the 1, then an *extream* is made behind. When the treble leaves the two firſt bells, they continue ſlow dogding until treble comes down and diſplaceth them. Every bell (except the treble) lieth twice in the 3*d* place.

12345	51324	15234
21354	15342	——
23154	15432	12543
32514	——	*Extre.*
32541	14523	12534
23451	14253	——
23415	——	15243
32145	12435	15423
31245	*Extre*	——
23254	12453	14532
13524	——	14352
31542	14235	——
35142	14325	13425
53412	——	13245
53421	13452	——
35241	13542	12354
35214	——	*Extre.*
53124	15324	12345

The

The Morning Star.
1 *and* 2.

THE treble hath a direct hunting courſe as in plain changes; and every time it hunts up, it makes two *ſingles* together, aud the like when it hunts down: when it leads the *ſingle* is behind, but when 2 lies next it an *extream* is made in the 3*d* and 4*th* places. Every time the treble goeth to lead and leaves leading, the double is on the two firſt and two laſt bells, and every bell except the treble leads four times together.

12345	51432	14523	15243	——
21354	54132	14532	——	14253
23154	54312	——	13425	14235
23514	53421	12354	13452	——
25341	35241	*extre.*	——	15324
52431	32514	12534	12543	15342
54213	32154	——	*extre.*	——
54123	31254	14352	12453	12435
51423	13245	14325	——	*extre.*
15432	13254	——	13542	12345
15423	——	15234	13524	

The

The Quiriſter.
1 *and* 2.

THis peal conſiſts moſt of *double* changes; the treble hath a direct hunting courſe as in plain changes, and every time it hunts up and down it makes a *ſingle* in the 3*d* and 4*th* places; and when it leads, the *ſingle* is behind, but when 2 lies next it an *extream* is made in the 3*d* and 4*th* places.

When the treble leaves the two hind bells, they continue dodging untill it comes up again and diſplaceth them, and then they hunt directly down; the firſt to lead, and the other into the 2*d* place: that which moves to lead, having lead four times, gives place to the treble; but when

12345	32514	15234
21354	35241	15243
23145	53421	——
23415	54312	14352
24351	54132	14325
42531	51423	——
45213	15432	12543
45123	15423	*extre.*
41532	51432	12453
14523	54123	——
14532	54213	15324
41523	52431	15342
45132	25341	——
45312	23514	14253
43521	23154	14235
34251	21345	——
32415	12354	13542
32145	*extre.*	13524
31254	12534	——
13245	——	12435
13254	13425	*extre.*
31245	13452	12345
32154	——	

when the Treble hath done leading it takes the treble's place again, and leads four times more and then hunts directly up; the other bell which moved down into the 2*d* place lies there twice, and then the Treble in hunting down moves it into the 3*d* place where it lies ſtill, untill the Treble in hunting up moves it back into the 2*d* place, where having lain twice it hunteth up. This Peal is as muſical, eaſie, and practical as any of this kind that ever was prickt.

The Faulcon.

1 *and* 2.

THis Peal conſiſts moſt of *double* changes. The treble hath a direct hunting courſe as in plain changes, and every time it hunts up and down it makes a *ſingle* in the 3*d* and and 4*th* places, and when it leads a *ſingle* is alſo made there, but when 2 lies next it the *extream* is made behind. When the treble leaves the two firſt bells they continue there until it comes down again and diſplaceth them, but obſerve, when the treble moves into the 5*th* place, and again from thence, the *double* is on the two firſt and two laſt bells, by means of which the two firſt bells then dodg,

dodg, but before and after they lie ſtill. Every bell lies twice in the 3*d* place and then hunts up, except that which lies there when the treble leaves leading.

12345	53241	——	15243
21354	35421	14235	15423
23145	53412	14325	——
23415	53142	——	14532
32451	51324	13452	14352
23541	15342	13542	——
32514	15432	——	13425
32154	——	15324	13245
31245	14523	15234	——
13254	14253	——	12354
13524	——	12543	*extre.*
31542	12435	*extre.*	12345
35124	*extre.*	12534	
35214	12453	——	

Merry Andrew.

1 *and* 2.

ONE change is *double*, the next *ſingle*, and ſo by turns. The treble leads four times, lies behind four times, and twice in every other place. Every other bell leads four

four times. When the treble leaves the two hind-bells they continue dodging untill it comes up again and diſplaceth them. Every *ſingle* is made behind until the treble hinders, and then in the 2*d* and 3*d* places. When the treble leads and the 2*d* lies next it, then an *extream* is made in the 3*d* and 4*th* places.

When the treble goes to lead and leaves leading, the *double* is on the two firſt and two laſt bells, and when every other bell goes to lead and leaves leading, the *double* is on the four firſt.

12345	51423	23514	15243
21354	15432	32154	15234
21345	15423	32145	12543
23154	14532	31254	*extre.*
23145	14523	31245	12453
32415	41532	13254	———
34215	41523	13245	13542
32451	45132	12354	13524
34251	45123	*extre.*	15342
43521	54213	12534	15324
45321	52413	———	———
43512	54231	14352	14235
45312	52431	14325	14253
54132	25341	13452	12435
54123	23541	13425	*extre.*
51432	25314	———	12345

May-

May-day.

1 *and* 5.

ONE change is *double*, the next *ſingle*, and ſo by turns. When the treble goes to lead and leaves leading, the *double* is on the two firſt and two laſt bells; and when every other bell goes to lead and leaves leading, the *double* is on the four firſt.

The treble hath a conſtant dodging courſe, for in its hunting up it firſt makes a dodg in the ſecond and third places, and then another behind, and then it lies ſtill one change in the 5*th* place; then in its hunting down it makes another dodg behind, and alſo another in the 2*d* and 3*d* places, and then leads four times. So that the treble is one of the two bells that makes every *ſingle* until it leads, and then 'tis made in the 2*d* and 3*d* pla-

12345	45132	12543
21354	41523	15234
23154	45123	12534
21345	54213	———
23145	54231	14352
32415	52413	13452
32451	52431	14325
34215	25341	*Extre.*
34251	25314	14235
43521	23541	———
43512	23514	15324
45321	32154	13524
45312	31254	15342
54132	32145	13542
51432	31245	———
54123	13254	12453
51423	12354	14253
15432	13245	12435
14532	*Extre.*	*Extre.*
15423	13425	12345
14523	———	
41532	15243	

places, except when the 5*th* lies behind, and then an *extream* is made in the 3*d* and 4*th* places. When the treble leaves the two hind-bells they continue ſlow dodging, until it comes up agaiu and diſplaceth them. Every bell leads four times.

St. Dunſtan's *Doubles.*

1 *and* 2.

THE changes are all *double* except one *ſingle* every 2*d* time the treble leads, there being ſix in the peal. The treble is a perfect *hunt*; and every time it goeth to lead and leaves leading, the *double* is made on the two firſt and two laſt bells, at which changes the bells in the 3*d* place lie ſtill and then move down, and the two hind-bells at the ſame time dodg: but at other times all the bells have a direct hunt-

12345	13245	12453
21354	——	——
23145	15423	13542
32415	14532	15324
34251	——	——
43521	12354	14235
45312	*extre.*	*ſingle.*
54132	12534	14253
51423	——	——
15432	14352	13524
14523	13425	15342
41532	——	——
45123	15243	12435
54213	*ſingle.*	*Extre.*
52431	15234	12345
25341	——	
23514	14325	
32154	13452	
31245	——	
13254	12543	
ſingle.	*extre.*	

ign

ing courſe. When the treble leads, and the 2*d* lieth either in the 2*d* or 3*d* places, then a *ſingle* muſt always be made betwixt the two next *extream* bells to the 2*d*.

Church Doubles.

1 *and* 2.

THE changes are all *double* except ſix *ſingles* as the former. The treble is a perfect *hunt*; and every time it moves up into the 5*th* place, and alſo out of it, the *double* is then made on the two firſt and two laſt bells, at which time the bells in the 3*d* place do lie ſtill and then move up; and the two firſt bells at the ſame time dodg. When the treble leads, and the 2*d* lieth either in the 2*d* or 3*d* places, then a *ſingle* muſt always be made betwixt the two next *extream* bells to the 2*d*.

12345	13254	14325
21435	*ſingle.*	——
24153	13245	12543
42513	——	*Extre.*
24531	14532	12453
42351	15423	——
24315	——	15324
42135	12354	13542
41253	*Extre*	——
14523	12534	14235
15432	——	*ſingle.*
51342	13425	14253
53124	14352	——
35214	——	15342
53241	15243	13524
35421	*ſingle.*	——
53412	15234	12435
35142	——	*Extre.*
31524	13452	12345

In this and the former peal the *ſingles* may be

be made in another manner, *viz.* when the *whole-hunt* leads, and the *half-hunt* lieth either in the *4th* or *5th* places, a *ſingle* muſt then be made betwixt the two next bells to the *half-hunt*; but at other times a *double* change to be made when the *whole-hunt* leads, as in the former way.

Stedman's *Principle.*

THE changes are all *double*, two *ſingles* excepted. One *double* is made on the two firſt and two laſt bells, the next on the four laſt, and ſo by turns ſucceſſively; excepting every ſixth change, which is *double* on the four firſt bells, and for diſtinction is called a *Parting* change. All the bells have a like courſe. The general method is this; the three firſt bells go the *ſix* changes, and the two hind-bells in the mean time dodg; then a *Parting* change is made which parts the two hind-bells, moving that in the fourth place down into the *3d*, and that in the *3d* place up into the *4th*, and then the three firſt bells go the *ſix* again, the two hind-bells in the mean time dodging as before; and then another *Parting* change is made, and ſo ſucceſſively on. Every bell that comes behind

continues there dodging ſix changes with one bell and ſix with another, and then in courſe the *Parting* change brings it down. One *ſix* cuts compaſs, the next doth not, and ſo by turns ſucceſſively. In the *ſix* which cut compaſs the two firſt bells of the three makes the firſt change of it, but in the other the two laſt of the three. By this method the peal will go ſixty changes, and to carry it on farther *extreams* muſt be made. An *extream* is made by the lying ſtill of two bells when in courſe they ſhould make a change, as before I have ſhewed more fully in the *Introduction*, *pag.* 90. but withall obſerving, that whereas in this peal the bells have all a like courſe, therefore they may all be termed *extream* bells, and conſequently the *extreams* to be made according to this general rule, *viz.* the firſt *extream* may be made by any two bells that are in courſe to make a change within the compaſs of the firſt ſixty changes of the peal; and the ſecond *extream* muſt be made according to this rule, Whatſoever two bells are dodging behind at the firſt *extream*, when the ſame two bells come to dodg there again, is a certain warning for the ſecond *extream* to be then made. And obſerve, how many changes the firſt *extream* is made from a *parting* change; ſo many likewiſe muſt the laſt

ex-

extream be made after a *Parting* change alſo. And the *ſingle* and *extream* comes in courſe

12345	42135	52431	24513	51324
21354	41253	25341	42153	15342
23145	14523	52314	24135	13524
32415	41532	53241	21453	31542
23451	45123	35214	12435	35124
24315	54132	32541	14253	53142
42351	51423	23514	41235	35412
43215	15432	32154	14325	34521
34251	51342	31245	13452	43512
43521	53124	13254	31425	45321
45312	35142	*extre.*	34152	54312
54321	31524	13245	43125	53421
53412	13542	31254	41352	35241
35421	15324	32145	14532	53214
34512	51234	23415	41523	52341
43152	15243	32451	45132	25314
34125	12534	34215	54123	23541
31452	21543	43251	51432	32514
13425	25134	42315	15423	23154
14352	52143	24351	51243	21345
41325	25413	42531	52134	12354
14235	24531	45213	25143	*extre.*
12453	42513	54231	21534	12345
21435	45231	52413	12543	
24153	54213	52134	15234	

each of them to he made in the ſame place

and by the ſame bells at the laſt *extream*, a they were at the firſt. Here the *ſingles* ar made behind, and the *extreams* in the 2*d* an 3*d* places; and as the 4*th* and 5*th* bells d dodg behind at the firſt *extream*, ſo likewiſ when they come to dodg there again, the ſe cond *extream* is then made, the treble lead ing at both of them, as appeareth in the peal here prickt.

The firſt *Parting* change is here made th third change at the heginning, and that *ſi* cuts compaſs.

In all the ſeveral ways of ringing this peal if the *Parting* changes are made at the fore ſtroke, as in courſe they are in this her prickt, then cutting compaſs is always on th ſame *ſixes*, as in this peal: but when the *Part ing* changes are made at back-ſtroke, then th contrary *ſix* always cuts compaſs to wha doth here.

Peals upon Six Bells.

The single Method.

THE changes are all *single*, and treble is the *hunt*. When the treble moves up out of the 2*d* place, the two first bells continue slow dodging untill the treble comes there again. And when the treble moves down out of the fourth place, the two hind-bells likewise continue slow dodging until the treble comes there again. When the treble leads, (if 'tis rung at half-pulls) the *fore-stroke change* (that is, at the third stroke of the treble's leading) is made in the 3*d* and 4*th* places, the rest of the changes there are made behind.

123456
213456
213465
231465
231456
321456
324156
234156
234516
324516
324561
234561
235461
325461
325416
235416
235146
325146
321546
312546
312564
132564
132546
135246
135264
153264
153246
152346
152364
125364
125634
126534
126543
162435
162453
153642
153624
135624
135642
153426
153462
135462
135426
164253
164235
146352
146325
164325
164352
146523
146532
164532
164523
146235
146253
142653
142635
124356
124365
123465
123456

hind. By this method it will go *ſix ſcore* changes.

To ring 240. When the *whole-hunt* leads, and the *half-hunt* dodgeth behind; the *fore-ſtroke change* muſt then be made in the 2*d* and 3*d* places, as in this here prickt, where the 2*d* is the *half-hunt*, and there are little marks ſet at the *fore-ſtroke changes*.

To ring 360. When the *whole-hunt* leads, and the *half* and *quarter-hunts* dodg behind, the *fore-ſtroke* change muſt then be made in the 2*d* and 3*d* places as before.

To ring 720. When the *whole-hunt* leads, and the *half-hunt* dodgeth behind, the *fore-ſtroke* change muſt then be made in the 2*d* and 3*d* places as before, except the *quarter-hunt* dodgeth there with the *half-hunt*, and then in the 3*d* and 4*th* places as at other times. The 2*d* and 4*th*, or the 2*d* and 6*th* may be the *half* and *quarter-hunts*, or others at pleaſure.

"*Note*, in all the following peals upon ſix "bells, the *bobs* are double changes, and al- "ways made at the leadings of the whole "hunt (except *Nonſuch Bob*, for there the "Bobs are made at the change wherein the "whole-hunt goeth to lead, and not when "it doth lead.) And whereas in the fol-

"lowing

"lowing peals the directions for calling *bob* "runs thus; *viz. Every time the half-hunt* "*dodgeth behind, a Bob muſt then be made, &c.* "'tis there implied, That whereas every "time the whole-hunt leads, the two hind-"bells then dodg; therefore when the half-"hunt dodgeth there at the leading of the "whole-hunt, a *bob* muſt then be made. And "in like manner alſo muſt all the *bobs* in the "following peals be made at the leading of "the whole-hunt. He that rings the half-"hunt may beſt call *bob* in all peals.

A Cure for Melancholly.

Doubles and Singles. The Treble is the *whole-hunt*, which leads four times, lieth behind as many, and twice in every other place. When it moves up out of the fourth place, the two bells in the third and fourth places continue dodging until it comes down there again, and then the two hind-bells dodg until the Treble diſplaceth them. The Treble is one of the bells which maketh every *double* change, except when it lieth ſtill behind, and then the *double* is on the four firſt, and alſo when it leads the *double* is

on the four last. Every *single* is made in the fifth and sixth places, except when the Treble lieth there, and then in the third and fourth places. Every bell except the Treble lieth four times in the second place. By this method it will go *six-score* changes, but by making of *bobs* it will go 240, 360, or 720. The *bob* is a *double* change at the leading of the Treble, wherein the bell in the fourth place lieth still.

To ring 240. Every time the *half hunt* dodgeth behind, a *bob* must then be made as in this here prickt, where 2 is the *half-hunt*.

To ring 360. Every time the *half* and *quarter-hunts* dodg together behind, a *bob* must then be made.

To ring 720. Every time the *half-hunt* dodgeth behind a *bob* must then be made, except the *quarter-hunt* dodgeth there with it, and then not.

123456	134625
213465	——
213456	162345
231465	162354
231456	163245
234165	163254
234156	——
243516	125634
245316	125643
243561	126534
245361	126543
423561	——
425361	154263
423516	154236
425316	152463
452136	152436
452163	——
451236	143526
451263	143562
415236	*bob*
415263	134526
145236	134562
145263	——
142536	156423
142563	156432
——	*bob*
156423	165423
156432	165432
bob	——
165423	132654
165432	132645
——	136254
143652	136245
143625	——
bob	124365
134652	124356

2 may be the *half* hunt, and 4 the *quarter* hunt, or others at pleasure.

123465
123456

The Morning Exercise.

Doubles and singles. treble is the *whole hunt*, and hunteth up into the 2*d*, 3*d*, and 4*th* places, lying twice in each; then having made a dodg behind, it lyeth still in the sixth place, and then makes another dodg behind, and so hunts down in the same manner as it hunted up, and then leads four times. When the Treble moves down out of the fifth place, the two hind-bells dodg untill it comes up there again; during which time the bell in the 4*th* place lieth still. And when the Treble moves

123456	——	142365
213465	164352	142356
213456	164325	——
231465	*bob*	146532
231456	163452	146523
234165	163425	*bob*
234156	——	145632
243516	165243	145623
243561	165234	——
245316	156243	143265
245361	156234	143256
254631	——	134265
254613	154326	134256
256431	154362	——
256413	*bob*	136524
265143	153426	136542
265134	153462	*bob*
261543	——	135624
261534	152643	135642
216543	152634	——
216534	125643	132465
126543	125634	132456
126534	——	123465
162543	124365	123456
162534	124356	

up

up out of the ſecond place, each bell that comes there lieth four times, until the Treble comes down there again. Every *ſingle* is made behind. By this method it will go 120 changes; and by making of *bobs* it will go 240, 360, or 270. At the *bobs* the bell in the 2*d* place always lieth ſtill.

To ring 240. Every time the *half-hunt* dodgeth behind, a *bob* muſt then be made, as in this here prickt, where 2 is the *half-hunt*.

The warning for the *bobs* in the 360 and 720, is the ſame with that in the peal next before: 2 may be the *half-hunt*, and 4 the *quarter-hunt*, or others at pleaſure.

The City Delight.

Doubles and Singles. Treble is the *whole-hunt*, and lieth four times before, four times behind, and twice in every other place. When it moves up out of the third place, the *ſingles* are made in the ſecond and third places until it comes there again, and then behind until it moves up again out of the third place. When it moves down out of the fourth place, the two hind-bells dodg until it comes up there again, during which time the bell

bell in the fourth place lieth ſtill. By this method it will go 120, and by making of *bobs* it will go 240, 360, or 720. At the *bobs* the bell in the ſecond place always lieth ſtill; and the warning for them is the ſame with that in the two laſt peals. In the 240 here prickt, 2 is the *half-hunt*; and in the 360 or 720, the 2 and 4 may be the *half* and *quarter-hunts*, or others at pleaſure.

123456	265143	153462	126534	143256
213465	256143	———	126543	134265
213456	251634	156234	———	134256
231465	251643	156243	124365	———
231456	215634	165234	124356	135642
234165	215643	165243	142365	135624
243165	125634	———	142356	*bob*
234615	125643	164352	———	136542
243615	152634	164325	145623	136524
246351	152643	*bob*	145632	———
264351	———	163452	*bob*	132465
246531	154326	163425	146523	132456
264531	154362	———	146532	123465
265413	*bob*	162534	———	123456
256413	153426	162543	143265	

London *Nightingale.*

Doubles and Singles. Treble is the *whole-hunt*, and lieth four times before, four times

times behind and twice in every other place. When it moves down out of the 5*th* place, the two hind-bells continue dodging until it comes there again, during which time the bell in the fourth place lieth ſtill. And when the two hind-bells leave dodging then the two firſt bells dodg until the hind-bells dodg again, and then they ceaſe. By this method it will go 120; and by making of *bobs* it will 240, 360, or 720. At the *bobs* the bell in the ſecond place always lyeth ſtill; and the warning for them is the ſame with that in the preceding peals. In the 240 here prickt, 2 is the *half-hunt*; and in the 360 or 720, the 2 and 4 may be the *half* and *quarter-hunts* or others at pleaſure.

123456	——	163245
213465	126543	163254
213456	126534	——
231465	162543	125634
231456	162534	125643
234165	——	152634
234156	153624	152643
243516	153642	——
423516	*bob*	164523
243561	156324	164532
423561	156342	*bob*
245361	——	165423
425361	134562	165432
245316	134526	——
425316	*bob*	143652
452136	135462	143625
452163	135426	*bob*
451236	——	146352
451263	142356	146325
415236	142365	——
415263	124356	132465
145236	124365	132456
145263	——	123465
154236	136245	123456
154263	136254	

The Evening Delight.

Doubles and Singles. Treble is the *whole-hunt* and leads four times, lies behind four times, and twice in every other place, except in the 2*d* and 3*d* places where it makes a dodg every time it hunts up and down. Every other bell hath the ſame courſe with the *whole-hunt*; but obſerving, when they come down and have made a *dodg* in the ſecond and third places, they lie ſtill one change in the ſecond place, and then make another *dodg* there, and ſo hunt up as the Treble did. But note, when the Treble goeth to lead and leaves leading, the bells in the third and fourth places lie ſtill. Every *ſingle* is made in the ſecond and third places, and every bell lieth four times behind. By this me-

123456	— —
213465	146253
231465	164253
213645	*bob*
231645	146235
236154	164235
263154	— —
236514	162453
263514	126453
265341	*bob*
256341	162435
265431	126435
256431	— —
254613	124653
245613	142653
254163	124563
245163	142563
241536	— —
214536	145236
241356	154236
214356	145326
124365	154326
142365	— —
124635	153462
142635	135462

thod

thod it will go 120. and by making of *bobs* it will go 240, 360, or 720. At the *bob*-change, the bell in the *4th* place always lieth ſtill.

To ring 240. Every time the *half-hunt* dodgeth in the ſecond and third places a *bob* muſt then be made, as in this here prickt, where 6 is the *half-hunt*.

153642	165342
135642	156342
136524	153624
163524	135624
bob	153264
136542	135264
163542	
	132546
165324	123546
156324	132456
bob	123456

To ring 360. Every time the *half* and *quarter-hunts* dodg together in the ſecond and third places, a *bob* muſt then be made.

To ring 720. Every time the *half-hunt* dodgeth in the *2d* and *3d* places a *bob* muſt then be made, except when the *quarter-hunt* dodgeth there with it, and then not.

In the 360 or 720, the 6 and 5 may be the *half* and *quarter-hunts*, or elſe 2 and 4, or others at pleaſure.

Colledge Doubles.

TReble is the *whole-hunt*, and hath a direct hunting courſe. When it moves down out of the *5th* place, the two hind-bells dodg until it comes there again; during which time

time the bell in the fourth place lieth ſtill: but otherwiſe the five hind-bells have a direct hunting courſe. By this method it will go *ſixty* changes; and by making of *bobs* it will go 120, 180, 360. At the *bob*-changes the bell in the ſecond place always lieth ſtill.

To ring 120. Every time the *half-hunt* dodgeth behind, a *bob* muſt then be made; as in this here prickt, where 2 is the *half-hunt*.

To ring 180. Every time the *half* and *quarter-hunt* dodg together behind, a *bob* muſt then be made.

To ring 360. Every time the *half-hunt* dodgeth behind a *bob* muſt then be made, except when the *quarter-hunt* dodgeth there with it, and then not.

123456	156234
213465	165243
231456	———
234165	164352
243615	*bob*
246351	163425
264531	——
265413	162534
256143	126543
251634	——
215643	124365
125634	142356
152643	——
512634	145623
521643	*bob*
526134	146532
562314	———
563241	143265
536421	134256
534612	———
543162	135642
541326	*bob*
514362	136524
154326	——
bob	132465
153462	123456
——	

In the 180 or 360, 2 and 4 may be the *half-*

half and *quarter-hunts*, or others at pleaſure.

By making of two *extreams* the 360 may be doubled. They are to be made according to the rules in the *Introduction*, *pag.*90.

Non-ſuch Bob.

Doubles. Treble is the *whole-hunt*, and hath a direct hunting courſe. When it moves up out of the third place, the bell that comes there lieth ſtill until the Treble comes down there again; during which time the two firſt bells dodg. When the Treble leaves the two hind-bells, they dodg until the change wherein the Treble goeth to lead, and then one of them moves down; but as ſoon as that change is made, the two hind-bells dodg again until the Treble moves up and parts them. Every time the Treble leads, the *double* is made on the four hind-

123456	532641
213465	352614
231456	532164
234165	531246
324615	513264
234651	153624
324561	156342
234516	516324
324156	561342
321465	563124
312456	653214
132546	563241
135264	653421
315246	563412
351264	654132
352146	651324
532416	615342
352461	*bob*

hind-bells throughout the peal. By this method it will go *sixty* changes; and by making of *bobs* it will go 120, 180, or 360. The *bob* is always made at the change wherein the Treble goeth to lead, the two first and two last bells making it.

To ring 120. Every time the *half-hunt* dodgeth before, is a warning for a *bob* to be made the next time the *whole-hont* goeth to lead; as in this here prickt, where 6 is the *half-hunt*.

To ring 180. Every time the *half* and *quarter-hunts* dodg together before, is a warning for a *bob* to be made when next the Treble goeth to lead.

To ring 360. Every time the *half-hunt* dodgeth before, is a warning for a *bob* to be made the

165324	543162
163542	453612
613524	543621
631542	453261
635124	543216
365214	453126
635241	451362
365421	415326
635412	145236
365142	142563
3615-4	412536
316542	421563
bob	425136
136524	245316
13564	425361
315624	245631
351642	425613
356124	245163
536214	241536
356241	214563
536421	124653
356412	126435
536142	216453
531624	261435
513642	264153
153462	624513
154326	264531
514362	624351
541326	264315

next time the Treble goeth to lead, except the *quarter-hunt* dodgeth there with it, and then not.

624135
621453
612435
bob

In the 180 and 360, the 6 may be the *half-hunt* and 5 the *quarter-hunt*, or others at pleaſure.

162453
164235
614253

By making of two *extreams* the 360 may be doubled; they muſt be made according to the rule in the *Introduction*, *pag.* 90.

641235
642153
462513
&c.

The *bobs* in this peal may alſo be made at the leadings of the *whole-hunt* as in other peals, and the bell in the fourth place to lie ſtill at every *bob-change*. The warning for them in the 120, 180, and 360 being the ſame with that in the *Colledge Doubles*, *pag.* 143.

London *Doubles*.

THE Treble is the *whole-hunt*; and hath a direct hunting courſe. When it moves down out of the fifth place the two hind-bells dodg until it comes there again, during which time the bell in the fourth place lieth ſtill. When the Treble is behind, the two firſt bells make a change; but at other times the

the leading bell lieth ſtill. By this method it will go *ſixty* changes, and by making of *bobs* it will go 120, 180, or 360. At the *bob-changes* the bell in the ſecond place always lieth ſtill. The warning for the *bobs* in the 120, 180, and 360, is the ſame with that in *Colledge Doubles*, *p.*143. By making of two *extreams* it will go 720. The *extreams* muſt be made according to the rule in the *Introduction*, *pag.*90.

In the 120 here prickt, 2 is the *half-hunt*; and in the 180 and 360, 2 and 4 may be the *half* and *quarter-hunts*, or others at pleaſure.

123456	541263	156342	——
213465	542136	——	164523
231456	524316	134562	*bob*
234165	523461	*bob*	165432
243615	253641	135426	——
246351	256314	——	143652
426531	265134	242356	*bob*
425613	261543	124365	146325
452163	216534	——	——
451236	126543	136245	132465
415263	162534	163254	123456
145236	——	——	
154263	153624	125634	
514236	*bob*	152643	

Triples, Doubles, and Singles.

123456	153462
214365	*bob*
241635	135426
246135	———
264315	153246
623451	152364
632541	———
365214	125634
356124	126543
351624	———
315264	162453
132546	164235
135264	———
312546	146325
321456	*bob*
324156	164352
342516	———
435261	146532
453621	*bob*
546312	164523
564132	———
561432	146253
516342	142635
153624	———
bob	124365
135642	123456

Triples, Doubles, and Singles dodging behind.

123456	162345
214365	126354
241356	———
243156	156423
234516	*bob*
325461	154632
352641	———
536214	134256
563124	143265
561324	———
516342	163542
153624	136524
135642	———
316524	126435
361542	*bob*
365142	124653
356412	———
534621	154326
543261	145362
452316	———
425136	165243
421536	*bob*
412563	162534
145236	———
bob	132465
142563	123456

Dou-

Doubles, and Triples.

123456	152364
214365	125346
241356	
243165	165432
234615	*bob*
326451	164523
362541	
635214	134256
653124	143265
651342	
615324	153624
163542	135652
136524	
315642	125463
351624	*bob*
356142	124536
365412	
634521	164352
643251	146325
462315	
426135	156234
421653	*bob*
412635	152643
146253	
bob	132465
142635	123456

Single Bob.

123456	134562
214365	135426
241635	
426153	125634
462513	*bob*
645231	152643
462531	
645213	142356
654123	143265
561432	
516342	163542
153624	165324
156342	
513624	125463
531264	*bob*
352146	152436
325416	
234561	132654
325461	136245
234516	
243156	146532
421365	*bob*
412635	164523
146253	
bob	124365
164235	123456

London

London *Bob.*

123456	
214365	162534
241356	126543
423165	
432615	145623
346251	*bob*
436521	146532
345612	
354162	135642
531426	*bob*
513462	136524
154326	
bob	125634
153462	152643
164352	146253
bob	164235
163425	
	132465
124365	123456
142356	
153246	
135264	

City Bob.

123456	163425
214365	*bob*
241635	136452
426153	
462513	163254
645231	162345
465321	
643512	126543
634152	125634
361425	
316245	152436
132654	154263
136245	
312654	145362
321564	*bob*
235146	154326
253416	
524361	145623
254631	*bob*
526413	154632
562143	
651234	145236
615324	142563
163542	
bob	124365
136524	123456

The

Theſe ſix peals will each of them go *ſixty* changes without any *bob*, and by making of *bobs* each of them will go 120, 180, and 360. In three of them, *viz.* *Triples Doubles* and *Singles*, *Single-bob*, and *City-bob*, at the *bob-changes* the bell in the fourth place always lyeth ſtill; whereas at the reſt of the changes which are made at the leadings of the *whole-hunt*, the bell in the ſecond place lieth ſtill. And in the other three peals, *viz.* *Triples doubles and ſingles dodging behind*, *Doubles and Triples*, and *London Bob*, at the *bob-changes* the bell in the ſecond place always lieth ſtill, whereas at the reſt of the changes that are made at the leadings of the *whole-hunt*, the bell in the fourth place lieth ſtill. The warning for the *bobs* in the 120, 180, and 360, in each of theſe *ſix* peals is the ſame with that in the 120, 180, and 360 in *Calledge Doubles*, *p.* 143. Each of theſe peals will go 720 with two *extreams*, which muſt be made according to the rule in the *Introduction*, *page* 90.

In the 120 of each there prickt, *viz.* in *City Bob*, *London Bob*, and *Triples doubles* and *ſingles*, the 2 is the *half-hunt*, and in the other three peals the 3 is the *half-hunt*.

In the 180 and 360 of each peal, the 2 and 4 may be the *half* and *quarter-hunts*, or others at pleaſure.

New Bob.

TRiples *and Doubles.* The general method of this Peal is the ſame with *Grandſire Bob*, and the *bobs* alſo made as in that peal. It will go 120, 180, or 240, and by making of two *extreams* it will go 360 or 480; and with ſix *ſingles* it will go 720.

To ring 120. Every time the *half-hunt* dodgeth behind a *bob* muſt then be made.

To ring 180. Every time the *half* and *quarter-hunt* dodg together behind, a *bob* muſt then be made; and by making of two *extreams* it will go 360. The firſt *extream* may be made at the firſt, ſecond, or third *bob*; obſerving to make the ſecond *extream* at the third following *bob* from the firſt *extream*, where the *ſingles* in both muſt be made behind.

To ring 720. The *bobs* throughout the peal are made by the ſame rule as in the 120; but farther obſerving, when the *whole* and *half-hunts* come together before, if the *quarter-hunt* lieth either in the third or fourth places, then a *ſingle* muſt be made betwixt the two next *extream* bells to the *quarter-hunt*.

The 2 may be the *half-hunt* and 4 the *quarter-hunt*, or others at pleaſure.

Colledge

Colledge Little Bob, dodging behind.

Triples and Doubles. The Treble is the *whole-hunt*, and hath a direct hunting course. When it moves down out of the fifth place, the two hind-bells dodg until it comes there again. All the bells have a direct hunting course, but observing, that when any bell moves up into the fourth place, if the Treble is then any where below it, it lies there twice, and then moves down again. By this method it will go *sixty* changes; and by making of *bobs* it will go 120, 180, or 360. At every *bob-change* the bell in the second place lieth still. The warning for the *bobs* is the same with that in *Colledge Doubles*, *pag.* 143. And the two *extreams* in the 720 must be made according to the rule in the *Introduction*, *page* 90.

123456	162345
214365	126354
241356	——
423165	156423
432615	*bob*
346251	154632
364521	——
635412	134256
653142	143265
561324	——
516342	163542
153624	136524
135642	——
316524	126435
361542	*bob*
635124	124653
653214	——
562341	154326
526431	145362
254613	——
245163	165243
421536	*bob*
412563	162534
145236	——
bob	132465
142563	123456
——	

In

In the 120 here prickt, 3 is the *half-hunt*; and in the 180 or 360, 2 and 4 may be the *half* and *quarter-hunts*, or others at pleasure.

This peal in practice will be found very plain and easie, and also good Musick.

Colledge Little Bob, dodging before and behind.

Triples and Doubles. The The Treble hath a direct hunting course, and when it moves up out of the second place, the two first bells dodg until it comes there again; and also when it moves down out of the 5*th* place, the two hind-bells dodg until it comes there again. Every bell that moves up into the fourth place, if the Treble is any where below it, lies there twice and then hunts down; and also every bell that moves down into the third place, if the Treble is any where above it, lieth there twice, and then hunts up behind. By this method it will go *sixty* chan-

123456	*bob*
214365	156342
241356	——
423165	134562
243615	*bob*
426351	135426
246531	——
425613	142356
245163	124365
421536	——
412563	136245
145236	163254
154263	——
512436	125634
521463	152643
254136	——
524316	164523
253461	*bob*
523641	165432
256314	——
526134	143652
251643	*bob*
215634	146325
126543	——
162534	132465
——	123456
153624	

changes, and by making of *bobs* it will go 120, 180, or 360. At every *bob-change* the bell in the second place lieth still. The 2 is the *half-hunt* in the 120 here prickt, and 2 and 4 may be the *half* and *quarter-hunts* in the 120 and 360, or others at pleasure.

The warning for the *bobs* is the same with that in the *Colledge Doubles*, p. 143. And the two *extreams* in the 720 must be made according to the general rule in the *Introduction*, page 90.

Court Bob.

TRiples and *Doubles.* The Treble hath a direct hunting course. Every bell that comes before and behind makes a *Dodg*, then lieth still, and so moves away, except the bell that lieth still behind when the treble leads, and also that bell which leads when the Treble lieth behind, both which do dodg before and after their lying still, and then move away. When the treble leads and lieth behind, the *double* is made on the four middle bells. By this method it will go *sixty* changes; and with *bobs* it will go 120, 180, or 360. At the *bob-changes* the bell in the fourth place lieth still.

To

To ring 120. Every time the *half-hunt* maketh a change next the *whole-hunt*, a *bob* muſt then be made, as in this here prickt, where 2 is the *half-hunt*.

To ring 180. Every time the *half* and *quarter-hunts* make a change together next the *whole-hunt*, a *bob* muſt then be made.

To ring 360. Every time the *half-hunt* maketh a change next the *whole-hunt* a *bob* muſt then be made, except when a *quarter-hunt* makes a change there with it, and then not.

In the 180 and 360 2 and 4 may be the *half* and *quarter-hunts*, or others at pleaſure. The two *extreams* in the 720 muſt be made according to the rule in the *Introduction*. The firſt *extream* may be made either

123456	165324
214365	156234
241356	—— —
423165	143265
243615	13.625
426351	—— —
462531	15:643
645213	*bob*
465123	125634
641532	—— —
614523	143652
165432	134562
156342	—— —
513634	126543
531642	*bob*
356124	162534
536214	—— —
352641	143526
325461	134256
234516	—— —
324156	165243
231465	156423
213456	—— —
124365	132495
bob	*bob*
142356	123456

ther the first, second, or third time that the *half* and *quarter-hunts* make a change together in the second and third places at the leading of the *whole-hunt*; and then the second *extream* must be made the third time following that those two bells make a change there again, the *extreams* being there made in the fourth and fifth places, and the *singles* in the second and third places.

Every time the Treble leads, the *double* may as well be made on the four hind-bells, and the *bobs* to be made as before; but the warning for them the same with *Colledge Doubles.*

Five Colledge Bobs.

IN these five peals the Treble is the *whole-hunt*, and hath alike dodging course in all of them. The general method of the five peals is as follows: *viz.*

Colledge Bob the first. When the Treble moves down out of the fifth place, the two hind-bells dodg until it comes there again. Every bell leads twice, and then hunts up into the fourth place, unless the dodging course of the Treble hinders it, where it lieth twice and then moves down again; except the bell

that

that dodged with the Treble before, and alſo that which leads when the Treble lieth ſtill behind, both which hunt directly up. When the Treble moves down from dodging in the third and fourth places, the bell that dodged there with it continues in thoſe two places, lying twice together in each by turns until the Treble comes to dodg there with it again.

Colledge Bob the ſecond. Every bell when it comes to lead makes a dodg before, then it lyeth ſtill one change, then it makes another dodg, and ſo moves up into the fourth place where it lieth ſtill twice, and then down again; except it dodgeth with the Treble in the fourth place, and then it hunts up behind. But when the Treble moves down out of the third place, the two bells in the third and fourth places continue there until the Treble comes up there again, during which time the two hind-bells dodg.

Colledge Bob the third. When the Treble leaves leading, the two firſt bells dodg until it comes to lead again; except when the Treble dodgeth behind, for then the two firſt bells lie ſtill. When the Treble leaves the two hind-bells, they lie ſtill one change, dodg the next, and ſo by turns until the treble comes there again. The two middle bells always dodg until the Treble hindereth them.

Col-

Colledge Bob the First.

123456	435216
214365	&c.
124356	163542
213465	*bob.*
231456	165324
324165	———
321456	123564
234165	*bob.*
243615	125346
426351	———
462315	143526
643251	134562
634521	———
365412	165432
356421	156423
534612	———
543162	124653
451326	142635
453162	———
541326	136245
514362	*bob.*
153426	132654
513462	———
154326	156234
145362	*bob.*
413526	152643
143562	———
415326	146253
451362	164235
543126	———
541362	132465
453126	123456

Colledge Bob the Second.

123456	543216
214365	&c.
124350	153624
213465	*bob*
231645	135642
326154	———
231654	153462
326145	*bob*
362415	135426
634251	———
364215	153246
632451	152364
623541	———
265314	125634
625341	126543
263514	———
236154	162453
321645	164235
236145	———
321654	146325
312564	*bob*
135246	164352
315264	———
132546	146532
135264	*bob*
312546	164523
132564	———
315246	146253
351426	142635
534162	———
351462	124365
534126	123456

Colledge Bob the Third.

123456	462513
214365	&c.
123405	165432
214356	*bob*
241365	156423
423156	— —
241356	143526
423105	*bob*
243615	134562
420351	— — —
423615	152364
246351	153246
423651	— — —
246315	126543
243651	125634
426315	— — —
246135	164235
421653	162453
246153	— — —
421635	143652
412653	*bob*
146235	134625
412635	— — —
146253	165324
142635	*bob*
416253	156342
142653	— — —
416235	132546
461253	135264
642135	— — —
461235	124365
642153	123456

Colledge Bob the Fourth.

123456	462513
214365	&c.
124356	165432
213465	*bob*
231456	156423
324165	— — —
321456	143526
234165	*bob*
243615	134562
420351	— — —
240315	152364
423651	153246
240351	— — —
423615	126543
243651	125634
420315	— — —
462135	164235
641253	162453
642135	— — —
461253	143652
416235	*bob*
142653	134625
412635	— — —
146253	165324
142635	*bob*
416253	156342
146235	— — —
412653	132546
421635	135264
246153	— — —
241635	124365
426153	123456

Colledge Bob the fourth.

When the Treble leaves the two hind bells, they dodg until it comes there again; and then the two first bells dodg until the Treble gives way for the two hind bells to dodg again, and then the two first bells cease dodging.

Colledge Bob the fifth.

When the Treble leaves the two hind bells, they dodg until it comes there again. And when it leaves the two first bells they lie still one change, dodg the next, and so by turns until it comes down there again; during which time the bells in the third and fourth places dodg except when the Treble hindereth them.

By these methods each of them will go 120 changes, and by making of *bobs* they will go 240, 360, or 720. In the first of them the bell in the second place lieth still at the *bob*-changes, and in

Colledge Bob the Fifth.	
123456	632514
214365	&c.
124356	163542
213465	*bob*
231456	136524
324165	——
321456	163425
234165	*bob*
324615	136452
236451	——
234615	163254
326451	162345
234651	——
326415	126543
324651	125634
236415	——
326145	152436
231654	154263
236145	——
321654	145362
312645	*bob*
136254	154326
316245	——
132654	145623
136245	*bob*
312654	154632
132645	——
316254	145236
361245	142563
632154	——
631245	124365
362154	123456

the other four the bell in the fourth place always lieth ſtill.

To ring 240. Every time the *half-hunt* dodgeth behind a *bob* muſt then be made, as in theſe peals here prickt; where, in the firſt peal the 4 is the *half-hunt*, and in the other four peals the 2 is the *half-hunt*.

To ring 360. Every time the *half* and *quarter-hunts* dodg together behind, a *bob* muſt then be made.

To ring 720. Every time the *half-hunt* dodgeth behind a *bob* muſt then be made, except when the *quarter-hunt* dodgeth there with it, and then not.

In the 360 or 720 of each peal the 2 may be the *half-hunt*, and 4 the *quarter-hunt*, or others at pleaſure.

The Experiment.

TRiples *and Doubles.* The Treble is the *whole-hunt*, but never hunteth up farther than the fourth place, for the four firſt bells go *Doubles and Singles*; and every time the Treble leads an *extream* is made in the third and fourth places, according to the common courſe of *doubles* and *ſingles* upon four bells; which courſe of *doubles* and *ſingles* muſt

muſt be continued, the two hind bells in the mean time dodging, until the making of the firſt *Parting* change, which will ſeparate the two hind bells; and then the four firſt bells go the ſame courſe of *doubles* and *ſingles* again, the two hind bells dodging as before, until the making of the ſecond *Parting* change, and ſo ſucceſſively. The *Parting* change is a *double* change on the four middle bells, and made at the leading of the Treble. The firſt *Parting* change may be made either at the firſt ſecond or third leading of the *Treble*, obſerving, that whatſoever bell in the firſt *Parting* change moves down to the Treble, when the Treble leads and that bell lieth next it again, the ſecond *Parting* change muſt then be made. And whatſoever bell in the ſecond *Parting* change moves down to the Treble when the Treble leads, and that bell lieth next it again, the third *Parting* change muſt then be made, and ſo ſucceſſively. There being five *Parting* changes in the Peal, and as many *half-hunts*, each of the bells (the Treble excepted) taking that place one after another; and conſequently, the five perſons that ring them muſt call the *Parting* changes one after another as their turn comes, according to the aforeſaid rule.

Chan-

Changes upon Seven Bells.

THE methods upon *five* may be prickt upon *ſeven*, obſerving but the true difference of proportion in the changes; that is, *doubles* upon *five* bells muſt be *triples* upon *ſeven*; *doubles* and *ſingles* upon *five* muſt be *triples* and *doubles* upon *ſeven*, *&c.*

Plain Triples.

ALL the bells have a direct hunting courſe. All peals upon *ſix* bells wherein half the changes are *triples*, will go upon *ſeven* according to this method here prickt; two of the changes upon *ſix* being always made at the leadings of the Treble, the ſix hindmoſt bells making them: the firſt is a *triple* change brought in by the courſe of the bells, and the next muſt either be *double* or *ſingle* according to the method of the changes upon *ſix*.

1234567
2143657
2416375
4261735
4627153
6472513
6745231
7654321
7563412
5736142
5371624
3517264
3152746
1325476

Dodg-

Dodging Triples.

TRiples and Doubles upon *ſix* may alſo go upon *ſeven*, according to this method here prickt, but in the ſame manner as the former.

1234567
2143576
2415367
4251376
4523167
5432617
4523671
5432761
4523716
5431276
5341267
3514276
3154267
1325476
1352746

Colledge Bob Triples.

EVery time the Treble leaves leading, the bell in the third place lieth ſtill, whilſt the four hind bells dodg; but otherwiſe all the bells have a direct hunting courſe as Plain *Triples.* By this method it will go *ſeventy* changes, and by making of *bobs* it will go 350. The rule for the *bobs* is this; when the Treble goeth to lead, if the *half-hunt* lying before gives it

1234567	6745312
2135476	7654132
2314567	7561423
3241657	5716243
3426175	5172634
4362715	1527364
4637251	1253746
6473521	

 place,

place, then a *bob* muſt be made at that change, wherein the bell in the third place lieth ſtill, and the four hind bells dodg; ſo that at every *bob* the four hind bells make two dodges before they part. By making of two *extreams* it will go 700, and with four *extreams* it will go 1400. But by making of intervening *bobs* it will go 700 compleat *triples* without any *extream*; 1400 with two *extreams*, and 2800 with four *extreams*. Any bell may be made a *half-hunt*.

Colledge Bob, Triples: the ſecond way.

1234567	4536271	7162534	7326145
2135476	5463721	1726354	3762415
2314567	5647312	1273645	3674251
3241576	6574132	2176354	
3425167	6751423	2713645	
4352617	7615243	7231654	

when the Treble leaves leading, the two hind bells dodg until Treble parts them; but in all other reſpects 'tis the ſame with the former, and the *bobs* made in the ſame manner, and by the ſame rule as in that peal, and it will go as many changes alſo as that.

Colledge Triples, dodging behind.

1234567	5346271	7165324	3675124
2143576	3564721	1756342	6357214
2415367	3657412	1753624	6532741
4251376	6375142	7135642	
4523167	6731524	7316524	
5432617	7613542	3761542	

Colledge Triples, dodging before and behind.

1234567	2436571	4126753	4726153
2143576	4263751	1462735	7462513
2415367	2467315	1467253	4765231
4251376	4276135	4176235	
2453167	2471653	4712653	
4235617	4217635	7421635	

Each of these two peals by the method here prickt will go *Eighty four* changes; and then when the Treble leads, and the *half-hunt* lieth next it, a *Parting* change being then made, they will go 420. And by making of *bobs* they will go 5040. 2 may be the *half-hunt*, or any other at pleasure. The *Parting*

change is a *double* on the four middlemoſt of the ſix hind bells.

'Tis plainly demonſtrable, that he *Principle* upon *five* may go 420 *triples* upon *ſeven*, which is a twelfth part; 840, which is a ſixth part; or 1260, which is a fourth part of the whole, and the utmoſt period of *triple* changes. And then by making of four *extreams* it may go 5040, the compleat peal.

Great variety of peals may be prickt upon ſeven: as *Triples, Triples and Doubles, Triples Doubles and Singles*; *Doubles, Doubles and Singles, &c.* But changes upon *ſeven* being ſeldom practiſed, I will therefore forbear to waſt more paper in pricking down examples, and proceed to the changes on *eight*.

Changes upon Eight Bells.

SIx*ſcores* upon *five* bells are commonly rung upon *eight*, three bells lying behind. The moſt muſical to lie behind are 2 1 8, 4 1 8, 1 4 8, 2 4 8, 3 4 8, 4 6 8, 6 4 8, 5 4 8, 8 6 4, 2 4 1, 3 2 1. and 1 3 5 to be laid behind, and then 1 and 3 to dodg throughout the peal. And alſo 1 8 4 to be laid behind, and to go the ſix changes thus, 8 1 4. 8 4 1.

4 8 1. 4 1 8. 1 4 8. 1 8 4. 8 1 4. *&c.* and ſo on tothe end of the *ſixſcore*. They may go the *ſixes* either at whole or half-pulls. Peals upon *ſix*, as *Triples* and *Doubles*, *&c.* make exceeding good muſick upon *Eight*, 4 8. 6 8. 4 1. or 1 8. lying behind. Or elſe *Triples* and *doubles* upon the ſix middle bells, the Treble leading, and the Tenor lying behind. And alſo *Triples* upon *ſeven*, the Tenor lying behind. But for ſuch as have not yet attain'd the skill to ring theſe compleat peals, *Sett-changes* are very proper for them, being eaſie and rung with little difficulty.

Colledge Grounds.

THE *grounds* of theſe *ſett-changes* are of two kinds. Firſt, placing of the bells *Fifths*, or ſecondly *Thirds*. To place them *fifths*; the 4 muſt hunt up behind the 7, the 3 behind the 6, and the 2 behind the 5. Or elſe the 5 may hunt down under the 2, the 6 under 3, and the 7 under 4. Or otherwiſe, firſt a *ſingle*, then a *double*, and then a *triple* change to be made on the middlemoſt bells, all which are to one effect; for then the bells will lie *fifths* thus, 1 5. 2 6. 3 7. 4 8. Here are four *Concords* to be chiefly regarded in the peal

peal. The firſt is 1 5. the ſecond 2 6. the third 3 7. and the fourth is 4 8. Theſe four *Concords* may go the methods of any changes upon four bells; 1.5 being taken for the Treble, 2.6 for the Second, 3.7 for the Third, and 4.8 for the Fourth; and the *Concords* to change places with each other at pleaſure. Wherein 'tis obſervable, that the two notes of every *Concord* muſt conſtantly attend each other in their motion; that is, whenſoever one of the two notes moves, the other muſt follow it. For example: admit they were to go the *twenty four* changes, and that 1.5 were to hunt up over 2.6, 3.7, and 4. 8. firſt therefore it muſt move up over 2.6, wherein it makes four changes: for firſt, the 5 moves up over the 2 thus, 12563748, the 1 muſt follow it thus, 2156.37.48. Then the 5 moves up over 6. 2165.37.48. the 1 follows it again 26.15.37.48; here the two *Concords* have made a change. In which manner alſo 1.5 muſt move up over 3.7 and 4.8. And in this manner are the *Concords* to move and change places with each other throughout the peal. Or ſecondly, to place the bells *thirds*, the 6 4 and 2 muſt hunt up, or elſe the 3 5 7 down; or otherwiſe a *triple*, a *double*, and a *ſingle* change to be made on on the middlemoſt bells; all which are to one and the

ſame

ſame effect, for then the bells will lie *thirds* thus, 13.57.24.68. Here are alſo four *Concords* principally to be regarded in the peal: the firſt is 1.3, the ſecond 5.7, the third 2.4, and the fourth 6-8. Theſe four *Concords* may alſo go the methods of any changes upon four bells, 1.3 being taken for the *treble*, 5.7 for the *ſecond*, 2.4 for the *third*, and 6.8 for the *fourth*, and they muſt move in the ſame manner as before I have ſhewed. By theſe *Grounds* great variety of excellent and Muſical changes are to be rung. If they go the *twenty four*, then the peal will conſiſt of four times that number, that is, *ninety ſix* changes. But they may go only the firſt eight changes of the *twenty four*, and then the peal will conſiſt of *thirty two*. Or elſe the firſt eight changes of a *twenty four* doubles and Singles, which will conſiſt of *forty eight* if the double changes of the *twenty four* are ſingled, otherwiſe but *thirty two* as before. Any *Concord* may be made a *hunt*, and to move either up or down at the beginning: ſo that theſe *Grounds* afford great diverſity. In the ringing of theſe *Sett-changes* the notes will lie ſometimes *fifths*, ſometimes *thirds*, and ſometimes *thirds* and *fifths*, and then 'tis pleaſant Muſick to *Clam* them, that is, the two notes of each *Concord* to ſtrike together; and

if

if they are *clam'd* true, the eight bells will ſtrike as if they were but four, but with far greater harmony. They may *Clam* two or three bouts, and then ſtrike open as many, and ſo alternately; or elſe they may *Clam* one pull, open the next, and ſo on. To reduce the notes of the *fifths* to their right places again at the concluſion of the peal, either 2 3 4 muſt hunt down, or elſe 7 6 5 up; or otherwiſe a *Triple double* and *ſingle* change to be made on the middlemoſt bells, all which are to one effect, and will bring the bells round. To reduce the *thirds*, either move down 2 4 6 into their places, or elſe move up 7 5 3 into theirs; or otherwiſe make a *ſingle*, *double*, and *triple* change on the middlemoſt bells; all which are to one effect, and will bring the bells again round.

The methods of all peals upon *ſix* bells may be prickt upon *eight*, obſerving but proportion in the changes, according to the difference in the number of bells, *viz.* *Triples* and *doubles* upon *ſix* muſt be *quadruples* and *triples* upon *eight*. *Doubles* upon *ſix* muſt be *Triples* upon *eight*, *&c.*

Bob

Bob Major.

PLain *Quadruples* and *Triples.* All the bells have a direct hunting courſe until the Treble leads, and then the ſix hindmoſt bells dodg. By this method it will go 112. And by making of *bobs* it will go 224, 336, or 672. The *bob* is a *triple* change at the leading of the Treble, wherein the bell in the *4th* place lieth ſtill.

To ring 224. Every time the *half-hunt* dodgeth behind, a *bob* muſt then be made.

To ring 336. Every time the *half* and *quarter-hunts* dodg together behind, a *bob* muſt then be made.

To ring 672. Every time the *half-hunt* dodgeth behind, a *bob* muſt then be made, except when the *quarter-hunt* dodgeth there with it, and then not. The 2 may be the *half-hunt*, and 4 the *quarter-hunt*, or others at pleaſure.

By making of two *extreams* it will go 1344, and with four *extreams* it will go 2688.

12345678
21436587
24163857
42618375
46281735
64827153
68472513
86745231
87654321
78563412
75836142
57381624
53718264
35172846
31527486
13254768
13527486

All

All peals upon *six* bells wherein half the changes are *triples*, will go upon *eight* according to the method before prickt, but after this manner. If it is a peal upon *six*, which consists of 360 or 720 changes, then in the ringing of it upon *eight* there must be five *hunts*. The Treble may be the first *hunt*, 2 the second *&c.* Now the method of the peal must go on according to that before prickt until the Treble leads, and the 2 lie next it, and then two of the changes upon *six* are always made, the six hind bells making them: the first is always a *triple* change brought in by the course of the bells thus, 12436587, and the second either *double* or *single* according to the method upon *six*; and the *third fourth* and *fifth* Hunts in eight, are the *whole half* and *quarter-hunts* in the changes upon *six*, By this method it will go 40320 compleat, but then every 112*th* change will be a *double*, and sometimes *single* in some peals. The bells may be brought round at 672 in some peals, but in others not till 1344.

Colledge

Colledge Bob-Major.

Quadruples and Triples. The *first* hath ſingle dodging behind; the *ſecond* ſingle dodging before and behind; the *third*

The firſt.	*The ſecond.*	*The third.*	*The fourth.*
12345678	12345678	12345678	12345678
21436587	21436587	21436587	21436587
24163578	24163578	24135678	24135678
42615387	42615387	42316587	42316587
46251378	24651378	43261578	24361578
64523187	42563187	34625187	42635187
65432817	24536817	36452817	24365817
56348271	42358671	63548271	42638571
53684721	24385761	65384721	24368751
35867412	42837516	56837412	42637815
38576142	24873156	58673142	24367185
83751624	42781365	85761324	42631758
87315642	24718356	87516342	24613785
78136524	42173865	78153624	42167358
71863542	41237856	71856342	41263785
17685324	14328765	17583624	14627358
16758342	13482756	15786342	16423785

double dodging behind; and the *fourth* double dodging before and behind. It may alſo be prickt a *fifth* way, *viz.* with ſingle dodging before, and double dodging behind. And likewiſe a *ſixth* way, *viz.* with doubled dodg-

dodging before, and ſingle dodging behind The dodging is without intermiſſion except when Treble hindreth, and alſo betwixt two bells until Treble parts them. By this method each of them will go 112, and by making of *bobs* they will go 224, 336, or 672. The *bobs* are *triple* changes at the leadings of the Treble; in the *firſt ſecond* and *ſixth* the bell in the 4*th* place lieth ſtill at the *bobs*, and in the *third fourth* and *fifth* the bell in the 2*d* place lieth ſtill. The warning for the *bobs* is the ſame with that in *Bob-major* next before. And the *extreams* made as in that peal, 2 may be the *half* and 4 the *quarter-hunt* in the four firſt, or others at pleaſure.

Colledge Triples, dodging before and behind.

BY this method it will go 112, and by making of *bobs* it will go 224, 336, or 672. The *bob* is a *triple-change* at the leadings of the Treble, wherein the bell in the 4*th* place lieth ſtill. The warning for the *bobs* is the ſame with

12345678	42587613
21435687	24578163
24153678	42571836
42513687	24517863
24531678	42157836
42536187	41275863
24563817	14725836
42568371	17452863
24586731	

with that in *Bob-major*, and the *extreams* alſo the ſame as in that peal. The 2 may be the *half-hunt*, and 4 the *quarter-hunt*, or others at pleaſure.

The Wild-Gooſe Chaſe.

TRiples. The *fourth* bell muſt firſt hunt up into the *7th* place, and then the 4 and 8 continually dodg behind throughout the peal, except when the Treble hindreth them. The bell that moves up into the *6th* place when the Treble moves down from thence, lieth ſtill there until the Treble diſplaceth it; during which time the two hind bells dodg, and the five firſt go a perfect hunting courſe. And alſo when the Treble moves up out of the *5th* place, the five firſt bells go a hunting courſe until it comes down there again. By this method it will go *eighty* changes, and by making of *bobs* it will go 160, 240, or 480. The

1 2 3 4 5 6 7 8
2 1 5 3 6 7 8 4
2 5 1 6 3 7 2 8
5 2 6 1 3 7 8 4
5 6 2 3 1 7 4 8
6 5 3 2 7 1 8 4
6 3 5 7 2 8 1 4
3 6 7 5 2 8 4 1
3 7 6 2 5 4 8 1
7 3 2 6 5 4 1 8
7 2 3 5 6 1 4 8
2 7 5 3 1 6 8 4
2 5 7 1 3 6 4 8
5 2 1 7 3 6 8 4
5 1 2 3 7 6 4 8
1 5 3 2 7 6 8 4
1 3 5 7 2 6 4 8
3 1 7 5 2 6 8 4
3 7 1 2 5 6 4 8
7 3 2 1 5 6 8 4
7 2 3 5 1 6 4 8

bob is a *triple* change at the leading of the Treble, wherein the bell in the 4*th* place lieth ſtill.

To ring 160. Every time the *half-hunt* maketh a change in the 2*d* and 3*d* places, a *bob* muſt at the ſame time be made.

To ring 240. Every time the *half* and *quarter-hunts* make a change together in the ſecond and third places, a *bob* muſt then be made.

To ring 480. Every time the *half-hunt* maketh a change in the ſecond and third places, a *bob* muſt then be made, except when the *quarter-hunt* makes a change there with it, and then not. The 2 may be the *half-hunt*, and 6 the *quarter-hunt*, or others at pleaſure.

Colledge Triples, dodging behind.

THE method of ringing this peal is the ſame in all reſpects with that next before, with this only difference. Every time the *whole-hunt* leads, the *triple* change is here made on the ſix middle bells, which parts the two hind-bells, and ſo introduceth them by degrees into the body of the peal. By this method it will go 112, and by making of *bobs* it will go 224, 336, or 672. The *bob* is a

triple

triple change at the leading of the Treble; wherein the bell in the 6*th* place lieth still. The warning for the *bobs* in the 224 is the same with that in the 160 next before. In the 336 'tis the same with that in the 240 next before. And in the 672 'tis the same with that in the 480 next before. 2 may be the *half-hunt* and 5 the *quarter-hunt*, or others at pleasure.

123456 78	623451 78
214356 87	264315 87
241536 78	246135 78
425136 87	421635 87
452316 78	412365 78
543261 87	143265 87
534628 17	134628 57
356428 71	316428 75
365247 81	361248 57
632547 18	632148 75

The Grand Experiment.

Quadruples and Triples. The Treble is the *whole-hunt*, but never hunteth up farther than the sixth place; for the six first bells go *triples* and *doubles*, it matters not of what sort, provided that the *double* changes at the leadings of the Treble are always made on the four hindmost of the six bells; which course of *triples* and *doubles* must be continued, the two hindmost of the eight bells in the mean time dodging until the first *Parting* change is made, which will separate the two hindmost bells; and then the six first bells go

the ſame courſe of *triples* and *doubles* again, the two hindmoſt bells in the mean time dodging as before, until the ſecond *Parting* change is made, and ſo ſucceſſively. The *Parting* change is a *triple* change on the ſix middle bells, and made at the leadings of the *whole-hunt*. The firſt *Parting* change may be made either at the firſt ſecond third fourth or fifth leading of the Treble; obſerving, that whatſoever bell in the firſt *Parting* change moves down to the Treble, when the Treble leads and that bell lieth next it again, the ſecond *Parting* change muſt then be made. And again, whatſoever bell in the ſecond *Parting* change moves down to the Treble, when the Treble leads and that bell lieth next it again, the third *Parting* change muſt then be made, and ſo ſucceſſively; there being ſeven *Parting* changes in the peal, and as many *half-hunts*, each of the *ſeven* bells taking that place one after another. So that the ſeven perſons that ring the *2d*, *3d*, *4th*, *5th*, *6th*, and *7th* bells, muſt call the *Parting* changes one after another, according as the aforeſaid rule directs them: or elſe he that rings the Treble may do it, but not ſo well as the reſt. To ring it with ſuch peals upon ſix bells which conſiſt of ſingle courſes, it will go 420; with double courſes 840. This peal may alſo be rung *triples*,

that

that is, the ſix firſt bells to go *doubles*, the two hind bells in the mean time dodging, and the *Parting* changes to be made as before. But in ringing it with ſuch Peals of *Triples* and *Doubles*, or elſe *Doubles* upon ſix bells, where the *double* change at every leading of the Treble is made in the 2*d* 3*d* 5*th* and 6*th* places, there, whatſoever two bells lie next the Treble at the firſt *Parting* change, the ſame two bells will lie next it at every *Parting* change, which will be a rule for calling them, there being only five *Parting* changes in it, which are *triples* as before. The firſt *Parting* change may alſo here be made either the firſt ſecond third fourth or fifth time the Treble leads. If it is rung with peals upon *ſix* bells, conſiſting of ſingle Courſes, it will then go 300, with double Courſes 600. This peal may alſo be rung by *Concatenating* of divers kinds of methods. For as the peal conſiſts of ſeveral parts, *viz.* from one *Parting* change to the next, being accounted a compleat part; ſo each part may be rung by a different method from the reſt. For any peals upon ſix bells, whether *doubles*, or *triples and doubles*, conſiſting either of ſingle or double Courſes, may indifferently be rung together in this peal, ſucceeding each other in the ſeveral parts of it, and at every *Parting* change a new

method to begin. Or elſe any two of them to ſucceed each other alternately throughout the parts of the peal, or more or leſs at pleaſure. But ſtill obſerving, that all that are rung together in one peal muſt be ſuch, where the *doubles* at the leadings of the Treble are made on the four hindmoſt of the ſix bells; or elſe all of them ſuch, where the *doubles* at the leadings of the Treble are made in the ſecond and third, and the fifth and ſixth places. If they are of the firſt kind, then there will be ſeven *Parting* changes in the peal, and as many *half-hunts*; and the *half-hunts* muſt ſucceſſively call the *Parting* changes as before I have ſhewed: if of the later kind, then but five *Parting* changes, which muſt be call'd by the ſame rule as before I have ſhewed in ringing it with one peal of this kind. And alſo obſerving, if the firſt *Parting* change is made at the firſt ſecond third or fourth leading of the Treble, then whatſoever method it goes at firſt, it muſt alſo go the ſame again after the laſt *Parting* change is made. But in ringing it with peals of the firſt kind, the ſecond being made the firſt *half-hunt*, and to call the firſt *Parting* change; and with peals of the later, the 3*d* likewiſe: then the laſt *Parting* change in either of them will conclude the peal.

This

This peal may go the method of the *Experiment* upon *six* bells, *page* 162, that is, the four first bells to go the *Twenty four* Doubles and Singles as in that peal; and the four hindmost bells in the mean time to dodg double. The *Parting* changes are *triples* on the middle bells, and the same rules observed in making and calling them, as in that peal: but here are seven of them in this, and 168 changes.

The *Experiment* upon *six* may also be rung *Comprehensively* herein. The six first bells to go that compleat peal, the two hindmost of the eight bells in the mean time dodging; and every time the 3*d* bell comes to call the *Parting* change on six, then instead of it a *Grand* change must be made, that is, a *triple* on the six middle bells: and then the six first bells to go the compleat peal again, the two hindmost bells in the mean time dodging as before, untill the third bell calls another *Grand* change, and so successively; there being three of them in the peal, and 360 changes. If the bells are placed 23567148 at the beginning, the 4.8 will dodg behind the first *sixscore* of it, 4.1 the second, and 1.8 the third, and then the 5*th* may call the *Grand* changes in the place of the 3*d*; or any other three bells may be laid behind at first, for the

ſake of Muſical dodging. The firſt *Grand* change may be made either at the firſt ſecond third fourth or fifth *Parting* change, obſerving, that whatſoever bell at the firſt *Grand* change ſhould then in courſe have call'd a *Parting* change, every time that bell comes to call a *Parting* change, it muſt call a *Grand* change in the place of it: or elſe any one of the ſix firſt bells (the *whole-hunt* excepted) may be appointed beforehand to attend the calling of the *Grand* changes, obſerving, that every time that bell comes to call a *Parting* change, a *Grand* change muſt be call'd in the place of it.

Imperial Bob.

Quadruples and Triples. The Treble hath a dodging courſe. The two firſt and two laſt bells always dodg until the Treble hindreth them, and in the mean time the two next bells to thoſe dodging bells do lie ſtill one change, dodg the next, and ſo by turns until the Treble alſo hindreth them. And the two bells in the fifth and ſixth places whilſt the Treble is behind, and thoſe in the 3*d* and 4*th* places when 'tis before dodg, until Treble likewiſe hindreth them. By this me-

method it will go 224, and by making of *bobs* it will go 448, 672, or 1344. The *bob* is a *triple* change at the leading of the Treble, wherein the bell in the fourth place lieth ſtill.

12345678	42361875	16847253	14283675
21436587	24368157	16482735	
12346578	42631865		18645273
21435687	24613857	18765432	18462537
24136578	42168375	*bob*	
42315687	24618357	17864523	16587432
24135678	42163875		*bob*
42316587	41268357	16573824	15684723
24361578	14623875	*bob*	
42635187	41263857	15678342	18753624
24631578	14628375		*bob*
42365187	14263857	17352648	17856342
24635817	41628375	17536284	
42368571	14268357		15372846
24365817	41623875	13274586	15738264
42638571	46128357	13725468	
24365871	64213875		13254768
42638517	46123857	12438765	13527486
24635871	64218375	12347856	
42368517	46281357		12436587
24638157	*&c.*	14826357	12345678

To ring 448. Every time the *half-hunt* dodgeth behind a *bob* muſt then be made, as in this here prickt, where 2 is the *half-hunt*.

To ring 672. Every time the *half* and *quarter-hunts* dodg together behind, a *bob* muſt then be made.

To

To ring 1344. Every time the *half-hunt* dodgeth behind a *bob* muſt then be made, except when the *quarter-hunt* dodgeth there with it, and then not. The 2 and 4 may be the *half* and *quarter-hunts*, others at pleaſure.

NOTTINGHAM *Peals.*

Nottingham *Mixt Peal.*

1. 6. 2.

THE Changes are plain *Trebles* and *Doubles* until the Treble leads, and then a *ſingle* change is always made. The Peal called *Old Doubles and Singles* upon five bells is the ground of this Peal, every *ſingle* in this peal being the *ſingle* in that. For as in that peal the *whole-hunt* is one of the two bells that make every *ſingle*; ſo likewiſe in this, the 6 being the *half-hunt*, is one of the two bells that makes every *ſingle* change herein, except when it lieth next the *whole-hunt*, and then the *ſingle* is behind; but when

123456
214365
241635
426153
462513
645231
654321
563412
536142
351624
315264
132546
132564

2 lieth

2 lieth alſo next the 6, then *extream* in the fourth and fifth places.

Nottingham *Trebles and Doubles.*

1. 2. 3.

THE ordinary courſe is to move directly, except when the *whole-hunt* paſſes either out of or into the *ſecond*'s place, and then conſtantly dodg behind. There are ſingle and double *bobs*; the *bob* is a *double* change at the leading of the Treble, wherein the bell in the *4th* place lieth ſtill. When the third *hunt* dodges behind, the ſecond *hunt* then leading, is a warning for the ſingle *bob* to be made at the next leading of the Treble. And when the ſecond and third *hunts* dodg together behind, is a warning for the double *bob* to be made at the two next leadings of the Treble. The two *extreams* in the 720 muſt be made according to the general rule in the *Introduction*, *p.* 90.

123456
214365
241356
423165
432615
346251
364521
635412
653142
561324
516342
153624
135264
312546
321564

Not-

Nottingham *Single Bob.*

1. 5. 2.

ONE time the Treble hunts quite up, the next time only up into the fourth place, and ſo by turns, as in the example here prickt. The bells obſerve the courſe of the Treble, and alſo dodg it being before; and once in 120 changes *bob*, when that bell which is nominated for the ſecond *hunt* lying behind twice, meets with the third *hunt* when the firſt *hunt* is going to lead. The ſecond and third *hunts* are both one.

123456	341265
214365	314625
241635	136452
426153	*bob*
462513	163425
645231	614352
654213	641532
562431	465123
526413	456132
254631	541623
245361	514263
423516	152436
432156	154263

The firſt *ſingle*,	The ſecond *ſingle*.
124365	123465
124356	123456

Nottingham *Bob.*

1 *and* 2.

THE Treble hath a dodging courſe, and every time it leads, the *double* is on the four

four middle hells, except the *bobs* which are made in the 2*d* and 3*d*, and the 5*th* and 6*th* places. The *bobs* are ſingle and double. When the *whole-hunt* leads and the *half-hunt* lieth behind, is a warning for a double *bob* to be made at the two next leadings of the Treble, there being but three changes betwixt the two *bobs*. And when the *half-hunt* lieth in the firſt and ſecond places for twenty changes together, is a warning for a ſingle *bob* to be made the ſecond time the Treble leads. The *extreams* muſt be made according to the general rule in the *Introduction*, *page* 90.

123456	523614	412635	562314	162453
214365	526341	146253	653241	126543
241635	253614	*bob*	635421	215634
426153	235164	164235	364512	216543
421635	321546	612453	365421	125634
246153	325164	621543	634512	152364
264513	231546	265134	643152	513246
625431	213456	261543	461325	
624513	124365	625134	463152	
265431	142635	652314	641325	
256341	416253	563241	614235	

Red-

Redding *Bob.*

THE Treble hath a dodging courſe, and when it moves up out of the 2*d* place the two firſt bells dodg until it comes there again; and when it moves down out of the 5*th* place, the two hind bells dodg until it comes there again, except only whilſt it dodgeth in the 3*d* and 4*th* places, and then the two hind bells lie ſtill. When the Treble lieth behind the *double* is on the four firſt bells; and when it leadeth on the four laſt. By this method it will go 120, and by making of *bobs* it will go 240, 360, or 720. At the *bobs* the bell in the 4*th* place lieth ſtill. The rule of calling the *bobs* is the ſame with that in the *Colledge Bobs*, *page* 162.

123456	324516
214365	234561
124356	325416
213465	235146
231456	321564
324165	235164
231465	321546
324156	312564
234516	135246
325461	315264
235416	132546
324561	135264
235461	

Redding *Bob according to the* Cambridg *way.*

THis is the ſame with the former, excepting only the *double* changes which are made

made when the Treble dodgeth in the 3*d* and 4*th* places, both in hunting up and down; which are here made on the four hind bells, whereas in that they were made on the four first bells: so that here the two hind bells dodg without intermission until the Treble hindreth them. This will also go 240, 360, and 720, and the *bobs* made by the same rule as the former.

123456
214365
124356
213465
231456
321465
321456

231654
236145
321654
312645
136254
316245
132654
136245

Fif-

Fifteen OXFORD *Peals.*

Adventure. 1 *and* 2.

Doubles and singles. Every bell leads four times. The Treble hath a dodging courſe; and is one of the two bells which makes every *ſingle* change except when it leads, and then 'tis made in the 3*d* and 4*th* places; but when the 2 lieth next it, an *extream* behind.

12345	35142	12453	15243
21435	31542	——	15423
24135	35124	14235	14532
21453	31524	14325	14352
24153	13254	13452	——
42513	13524	13542	13425
42531	15342	——	13245
45214	15432	15324	12354
45231	——	15234	*Extr.*
54321	14523	12543	12345
54312	14253	*Extr.*	
53421	12435	12534	
53412	*Extr.*	——	

Camelion. 1 *and* 2.

EVery time the Treble hunts up and down, it makes a *ſingle* in the third and fourth

4*th* places, and when it leads the *single* is there alſo; but when 2 lies next it, then an *extream* behind. Every bell except the Treble leads four times.

12345	45213
21354	45123
23145	41532
23415	14523
24351	14251
42531	

Medley. 1 *and* 5.

D*Oubles and Singles.* The Treble leads four times, lieth behind as many, and twice in every other place. Every other bell leads four times. Every *ſingle* is made behind, except when the Treble is either in the fourth or fifth places, and then in the ſecond and third places. Every time the Treble goeth to lead and leaves leading, the *double* is on the two firſt and two laſt bells, except when the Treble goeth to lead if the 5*th* gives it place, and then the *double* is made on the four firſt bells.

12345	54132
21354	54123
21345	51432
23154	51423
23145	15243
32415	15234
34215	12543
32451	12534
34251	
43521	14352
45321	14325
43512	13452
45312	13425

Oxford *Paradox.* 1 *and* 5.

Doubles and ſingles. Every bell leads four times, and lieth behind as many. Every *ſingle* is made in the third and fourth places until the Treble leads, and then in the ſecond and third places: but when the Treble leads and the fifth lieth behind, then the *extream* in the third and fourth places.

12345 54312
21435 54132
21345 45312
23154 45132
23514 41523
32154 41253
32514 14523
35241 15423
35421 14532
53241 15432
53421

Halliwell. 1 *and* 2.

TReble leads four times, lies behind as many, and twice in every other place. When it leaves the two hind bells, they dodg until it comes there again, except when it leads and 2 lies next it, for then an *extream* is made in the third and fourth places.

12345 54312
21354 45312
21345 54132
23154 54123
23145 51432
32415 51423
23415 15432
32451 15423
34251 14532
43521 14523
45321

Ox-

Oxford *Sixſcore.*

THE Treble hath a direct hunting courſe, as in plain changes; and the changes are all *ſingle* except when the Treble lieth behind, and then a *double* is made on the four firſt bells; and when it leads, the *ſingle* is in the third and fourth places, but when 2 lieth next it an *extream* behind.

12345	32514
21345	32154
23145	31254
23415	13254
23451	13524
32541	

Fortune. 1 *and* 2,

Doubles. The Treble is a perfect hunt, and when it leaves the two hind bells they dodg until it comes there again. Every bell leads twice, and then hunts directly up, unleſs the aforeſaid dodging hindreth them. Every time the Treble leads, a *ſingle* is made behind, except when 2 lieth next it, and then an *extream* in the third and fourth places.

12345	13254
21354	
23145	14523
32415	14532
34251	
43521	12354
45312	*Extr.*
54132	12534
51423	
15432	14352
15423	14325
13245	*&c.*

Oxford *Single Bob.*

Triples, Doubles, and Singles.

1. 2. *and* 3.

THE Treble hath a direct hunting courſe; and when it leaves the two hind bells they dodg until it comes there again. Every bell leads twice, and then hunts directly up, unleſs the aforeſaid dodging hindreth them. When the Treble leads, the *double* is on the four hind bells. By this method it will go *ſixty* changes, and by making of *ſingles* it will go 120, 240, 360, or 720. The *ſingles* in the 120, 240, and 720, muſt be made by the ſame method with thoſe in *Old Triples and Doubles, page* 109. And to ring 360, every time the 1. 2 lie together before, the *ſingle* muſt be made behind; and when 1. 2. 3 lie together there, then the *ſingle* in the fourth and fifth places.

123456
214365
241356
423165
432615
346251
364521
635412
653142
561324
516342
153624
156342
513624
531642
356124
365214

Ox-

Oxford *Double Bob.*
Triples, Doubles, and Singles.

WHen the Treble leaves the two firſt bells, they dodg until it comes there again; but in all other reſpects 'tis the ſame with the former. And the *ſingles* in the 120, 240, 360, and 720, to be made as in that Peal.

123456	246135
214365	421653
241356	412635
423165	146253
243615	142635
426351	416253
243651	461235
426315	

Oxford *Single Bob.*

THE method of this Peal is the ſame in all reſpects with *Oxford Single Bob, Triples Doubles and Singles*, excepting the *bobs* in this peal, which are made in ſtead of the *ſingles* in that. By making of *bobs* it will go 180 or 360. The *bob* is a *double* change at the leading of the Treble, wherein the bell in the fourth place lieth ſtill.

To ring 180, there muſt be a *whole* and *half-hunt*; and when the *whole-hunt* is before and the *half-hunt* behind, the next change is to be a *bob*.

To

To ring 360, there muſt be a *whole*, *half*, and *quarter-hunt*, *viz.*

Firſt, when the *whole-hunt* comes to lead, and the *half-hunt* to fall behind, the next change is a *bob*: and

Secondly, when the *whole-hunt* leads before the *quarter-hunt*, and the *half-hunt* is in the fifth place, the next change is alſo a *bob*.

The 1 and 5 may be the *whole* and *half-hunts* in the 180, and 1.5.3 the *whole*, *half*, and *quarter-hunts* in the 360, or others at pleaſure.

Oxford *Double Bob.*

THE method of this peal is the ſame in all reſpects with *Oxford double Bob* before, excepting the *bobs* in this peal, which are made inſtead of the *ſingles* in that. The *bobs* are here made in the ſame manner, and call'd by the ſame rule in the 180 and 360, as in *Oxford ſingle Bob* next before; and the two *extreams* in the 720, both in this and the laſt peal, muſt be made according to the general rule in the *Introduction*.

Ox-

Oxford *Triple Bob.*

THE Treble is the *whole-hunt*, and hath a dodging courſe. When it leaves the two hind bells, they dodg until it leads, and then a *double* is made on the four middle bells, which parts the two hind bells; but then the two hind bells dodg again until the Treble diſplaceth them. Every bell leads twice (except when the Treble dodgeth there) and as they hunt up and down do make a dodg in the third and *4th* places. When the Treble moves up from dodging before, the bell that dodged there with it continues in the firſt and *2d* places, lying twice together in each, until the Treble comes down to dodg there with it again. By this method it will go 120, and by making of *bobs* it will go 360. At the *bobs* the bell in the fourth place lieth ſtill. The warning for them is this, When the *half-hunt* leads, and the Treble moves down, and dodgeth there with it,

123456
214365
124356
213465
231456
324165
321456
234165
243615
426351
423615
246351
264531
625413
624531
265413
256143
521634
526143
251634
215643
126534
216543
125634
152364
513246
153264
512346
521364

a *bob* muſt then be made at that leading of the Treble. The 3 may be the *half-hunt*, or any other.

Oxford *Triple Bob, the ſecond way.*

THis peal is in all reſpects the ſame with that next before, except the *double* change which is made when the Treble moves up out of the ſecond place, and alſo down into that place again, which is here made on the four middle bells, and conſequently parts the two hind bells, which in the former peal continued dodging together. This will alſo go 360, the *bobs* being made in the ſame manner, and alſo the warning for them the ſame, as in the former peal.

123456	254613
214365	245163
124356	421536
213465	425163
231645	241536
326154	214356
321645	123465
236154	213456
263514	124365
625341	142635
623514	416253
265341	146235
256431	412653
524613	421563
526431	245136

Oxford *Riddle, or the Hermophrodite.*

TReble is the *whole-hunt*; whilſt 'tis hunting up the two laſt bells dodg, and whilſt 'tis

'tis hunting down the two first. Every time it leads and lieth behind, the *double* is made on the four farthest bells from it. Every bell leads twice and lieth behind twice, except the dodging hinder. By this method it will go *sixty* changes *triples* and *doubles*, and then by making of *singles* as in *Old triples* and *doubles*, it will go 120, 240, or 720.

123456	341652
214365	314562
241356	135426
423165	134562
432615	315426
346251	351462
432651	534126
346215	543216
436125	

My Lord. 144.

Doubles. Treble is a perfect Hunt. Every bell leads twice, and then moves up into the third place where it lieth twice, and then moves down again except the motion of the Treble hindreth. When the Treble goeth to lead and leaves leading, the *double* is on the two first and two last bells; and when it leadeth, 'tis on the four middle bells. But when it leadeth, and the 6 lieth behind, then a *single* in the third and fourth places.

If a *double* be made on the four hind bells, at every third leading of the

123456
213465
231456
324156
342516
432561
423651
243615
234165
321465
312456
132465
123645

the Treble it will go 180 compleat *doubles*; and then by making of two *ſingles* it will go 360, or with four *ſingles* 720.

Seventeen Peals compoſed at CAMBRIDGE, *by Mr. S.S.*

My Honey. 1 *and* 2.

IN this peal there is a *whole-hunt* and an *half-hunt*. The *whole-hunt* lieth always four times before, and four times behind, and twice in every other place. The two hindmoſt bells always dodg 'till the *whole-hunt* hindreth, except when the *whole-hunt* is before, at which time there are four changes made of a four and twenty *doubles* and *ſingles*; the firſt of which is a double change brought in by the

12345	31254 54321
21354	31245 45231
21345	13254 54231
23154	—— 45213
23145	13524 54213
32415	15342 45123
23415	—— 45132
32451	15432 41523
23451	51423 41532
32541	51432 14523
23541	54123 ——
32514	54132 14253
23514	45312 12435
32154	54312 ——
32145	45321 12453

the courſe of the bells (as in the following peal appeareth) 13254; the ſecond is a *ſingle* in the third and fourth places (13524); the third is a *double* on the four laſt (15342), and the fourth a *ſingle* again in the third and fourth places (15432), except when the *half-hunt* is with the *whole-hunt* before, then it is to be an *extream* behind. When the *whole-hunt* leaves the *third's* place hunting up, the two formoſt bells dodg till it returns into he ſame place again.

The Whirligigge. 1 *and* 5.

IN this peal, firſt the bells dodg behind (and not before) till the *whole-hunt* hindreth them; and the next courſe they dodg in like manner before (and not behind) till the *whole-hunt* hindreth them; and ſo by turns throughout the whole peal. When the *whole-hunt* is before, if the bells were dodging behind before it came to lead, ſingle behind; if they were dodging before, ſingle in *ſecond's* and *third's* place: and when the *whole-hunt* leads, and *half-hunt* is in *Tenor's* place, there is always an *extream* to be made in 3*d* and 4*th* place, which is every fourth time the *whole-hunt* leads.

21354

21354	51243	31245	41352
23145	52134	32154	43125
32415	25314	23514	34215
34251	52341	25341	43251
43521	25431	52431	34521
45312	52413	54213	43512
54132	25143	45123	34152
51423	21534	41532	31425
15432	12354	14523	13245
15423	13254	14532	13425

Jack-on-both-ſides. 1 *and* 5.

IN this peal the bells always dodg both before and behind, till the *whole-hunt* hindreth them; except when both the Hunts

21354	45132	52143	32514	23451	53421
23145	54312	25413	23541	32541	35412
32415	45321	52431	32451	23514	53142
34251	54231	25341	34215	32154	51324
43521	45213	52314	43125	31245	15234
34512	54123	25134	41352	13254	——
43152	51432	21543	14325	13524	15243
41325	15342	12534	14235	31542	51423
14352	——	12354	41253	35124	
14532	15324	21345	42135	53214	
41523	51234	23154	24315	35241	

are together either before or behind; for then

then the two fartheſt bells from the Hunts do leave dodging for the next change onely which is always a *double* made by the two Hunts and the two next bells to them. The *ſingles* and *extreams* are made as in the *Old Doubles.*

Winwick *Doubles.* 1 *and* 3.

IN this peal, firſt, the two hindmoſt bells dodg till the *whole-hunt* dindreth them, till the firſt *ſingle* is made: and then the two formoſt bells dodg 'till the *whole-hunt* hindreth them, until there be made another *ſingle*, and ſo they continually dodg ſucceſſively throughout the whole peal. There are ſix *ſingles* which are made in the ſame manner as in St. *Dunſtan's Doubles*, page 127.

21354	41532	31254	41523
23145	45123	32145	45132
32415	54213	23415	54312
34251	52431	32451	45321
43521	25341	23541	54231
45312	23514	32514	45213
54132	32154	23154	54123
51423	31245	21345	51432
15432	13254	12435	15342
14523	——	14253	——
	13524		15324

None-

Non-ſuch. 1 *and* 2.

IN this peal the bells always dodg both behind and before till the *whole-hunt* hindreth them, except when both the Hunts are together either behind or before: for then the bells omit dodging for the next change, as in *Jack-on-both-ſides.* There are four *fingles* which are all made in the 3*d* and 4*th* places every third time that the *whole-hunt* leads.

21435	25134	32415	53214	54231	34521
24153	52314	23451	35241	45321	35412
42513	25341	32541	53421	43512	53142
24531	52431	23514	54312	34152	51324
42351	25413	32154	45132	31425	15342
24315	52143	31245	41523	13452	———
42135	51234	13254	14532	14325	15432
41253	15243	———	15423	41352	
14235	12534	13524	51432	43125	
12453	21354	31542	54123	34215	
21543	23145	35124	45213	43251	

Cambridg *Delight.* 2 *and* 4.

IN this peal the two hindmoſt bells always dodg till the *whole-hunt* hinders them. When the *whole-hunt* leaves the *thirds* place hunt-

hunting up, the two foremoſt bells dodg till the *half-hunt* hinders them, whoſe courſe is the ſame with the courſe of the *half-hunt* in *Grandſire*. There are two *ſingles* which are made by the ſame rule as in *Grandſire*.

13254	15243	14235	45231
31524	12534	41325	42513
13542	21543	43152	24531
31452	25134	34512	25413
34125	52143	35421	52431
43215	51234	53241	54213
42351	15324	52314	45123
24315	51342	25341	41532
23451	15432	23514	14352
32415	14523	32541	13425
34251	41253	35214	31245
43521	42135	53124	32154
45312	24153	35142	23145
54132	21435	53412	——
51423	12453	54321	23154

Cambridg *Delight, another way.*
1 *and* 4.

IN this peal the two hindmoſt bells always dodg till the *whole-hunt* hinders, as in the former Peal. When the *half-hunt* leaves the 3*ds* place hunting up, the two foremoſt bells dodg

dodg till the *whole-hunt* hinders. It differeth from the former peal in this; That whereas in that the bells always begin to dodg before when the *whole-hunt* leaves *third's* place, and are parted by the *half-hunt*; in this they begin to dodg before when the *half-hunt* leaves the *third's* place, and are parted as well before as behind by the *whole-hunt*. It differeth also, in that the *half-hunt* in this peal always bobbeth behind on the contrary stroke to what it doth in the former peal; there are two *singles*, which are made as in the former peal.

21354	51234	31524
23145	52143	35142
32415	25413	53412
34251	24531	54321
43521	42351	45231
45312	43215	42513
54132	34125	24153
51423	31452	21435
15432	13425	12453
14523	14352	14235
41532	41325	41253
45123	43152	42135
54213	34512	24315
52431	35421	23451
25341	53241	32541
52314	35214	23514
25134	53124	32154
21543	51342	31245
12534	15324	13254
15243	13542	13245

The Dream, upon five bells. 1 *and* 2.

IN this peal the two hindmost bells always dodg till the *whole-hunt* hinders, except when the two Hunts are together before. Or it may be rang by making the two foremost bells

bells dodg always, except the Hunts be together behind. There are six single changes which are all behind every other time the *whole-hunt* leads, the *half-hunt* at every *single* lying either in the 2*d* or 3*ds* places.

21435	51342	41235	53142
24153	53124	42153	35412
42513	35214	24513	34521
45231	32541	25431	43251
54321	23451	52341	42315
53412	24315	53214	24135
35142	42135	35124	21453
31524	41253	31542	12543
13542	14235	13524	——
15324	——	15342	12534
	14253	51324	&c.

The Contention upon five bells.
1 *and* 2.

IN this peal the two hindmost bells dodg as in the former peal till the Hunts are together before for twenty changes; and then for the next twenty changes the two formost bells dodg, except the Hunts are together behind. There are six *singles* which are made as in the former peal.

21435	51342	41523	41235
24153	53124	45132	42153
42513	35214	54312	24513
45231	32541	53421	42531
54321	23451	35241	24351
53412	24315	52314	42315
35142	42135	35124	24135
31524	41253	31542	21453
13542	14235	13452	12543
15324	———	14325	———
	14253		12534

&c.

The Cheat. 1 *and* 3.

IN this peal the two hindmoſt bells always dodg 'till the *whole-hunt* hinders, and the two foremoſt bells dodg 'till either the *whole* or *half-hunt* hinders. Or on the contrary, the two foremoſt bells may dodg 'till the *whole-hunt* hinder, and the two hindmoſt 'till either the *whole-hunt* or *half-hunt* hinder. Or it may be rang a third way, by joining both theſe courſes together, ringing twenty changes of it one way, and the next twenty changes the other way throughout the peal. There are ſix *ſingles* which are all made behind, every ſecond time the *whole-hunt* leads; or at pleaſure it may be rang with twelve *ſingles*, which are likewiſe all made behind.

21354

21354	41532	31542	51243
23145	45123	35124	52134
32415	54213	53214	25314
34251	45231	52341	23541
43521	54321	25431	32451
45312	53412	52413	34215
54132	35142	25143	43125
51423	31524	21534	41352
15432	13542	12543	14325
14523	———	15234	———
	13524		14352 &c.

Topsie-turvie. 1 *and* 2.

21354	41532	31542	21453
23145	45123	35124	24135
32415	54213	53214	42315
34251	45231	35241	24351
43521	54321	53421	42531
45312	53412	35412	24513
54132	35142	53142	42153
51423	31524	51324	41235
15432	13542	15234	14325
14523	———	12543	———
	13524		14352 &c.

Jumping Doubles dodging before.

IN this peal every change is a jumping change (in which one bell leaps over two bells at once,) except when the Treble is either behind or before, for then there is always a plain *double* change made, or elſe a *ſingle* at the end of each ſixty changes. Treble

12345	31254	54132	24513	53241	43521
21534	23145	45213	42351	35421	34215
52143	32514	54321	24531	53214	43152
25314	23451	45231	42315	35142	31425
52431	32541	54312	24153	51324	13254
25341	23415	45123	41231	15432	——
52413	32154	51432	14352	14523	13245
25134	21345	15243	13425	41352	&c.
51243	12453	12534	31542	34125	
15324	14235	21453	53124	43512	
13542	41523	42135	35412	34251	

is a perfect Hunt; the two foremoſt bells always dodg until the Treble hinder. When the Treble is hunting up, the jumping changes are all made by the bell in the Tenor's place, jumping into *third's*, except only that one when Treble goeth out of *ſecond's* place into *third's*; for then the bell in the 3*ds* place jumps into Trebles, where it dodgeth with the bell in the 2*ds* place till Treble hinder.

der. When Treble is hunting down every jumping change is made by the bell in the 3*ds* place jumping into Tenor's, except when it goeth out of *third's* place into *second's*, for then the bell in Treble's place jumps into 3*ds*. And obſerve always, that when Treble is going to lead the firſt time, the bell in Tenor's place jumps into *third's*, and the next time the bell in the *third's* place into Tenor's throughout the peal. There are two *ſingles* which are made, as in *Grandſire*.

Jumping Doubles dodging behind.

IN this peal Treble is a perfect Hunt, as in the former. The two hindmoſt bells always dodg till Treble hinders. When Treble is hunting up the bell in the *third's* place always jumps into Treble's, excepting only when Treble goeth out of *third's* place into *fourth's*; for then the bell in Tenor's place jumps into 3*ds*. And obſerve, that every ſecond time the Treble goeth out of 4*th* into 5*ths* place, the bell in Treble's place jumps into 3*ds*; whereas at other times at the ſame change the bell in 3*ds* place jumps into Treble's. When Treble leaves the 5*ths* place hunting down, the bell in the 3*ds* place

jumps into Treble's; when ſhe leaves 4*ths* place the bell in 3*ds* place jumps into Tenor's. When ſhe is either in the 2*d* or 3*ds* places hunting down, the bell in the Treble's place jumps into 3*ds*. There are two *ſingles* made, as in the former Peal.

12345	31425	52143	24513	25341	34251
31254	43152	25314	45231	52431	23415
23145	34215	32541	54321	45213	32154
32514	42351	23451	35412	54132	21345
53241	24531	42315	53124	41523	13254
35421	52413	24153	31542	15432	
43512	25134	41235	15324	14523	13245
34125	51243	12453	13542	51432	&c.
41352	12534	14235	51324	45123	
13425	15243	21453	35142	54312	
14352	21534	42135	53214	43521	

Symphonie, upon ſix bells.

1. 2. *and* 3.

IN this peal are 720 changes, all *doubles* except twelve *ſingles*, which are made as in plain *Trebles and Doubles* on ſix bells. The two hindmoſt bells always dodg till the *whole-hunt* hinders them, except when a *ſingle* is is made in the 4*th* and 5*th* places. When the *whole-hunt* leaves the 4*ths* place hunting up, the two foremoſt bells dodg till it leaves the ſame

ſame place again hunting down: but it may be rang at pleaſure to make the bells dodg perpetually before as well as behind, by making in every twelve changes two Trebles, one of them when the *whole-hunt* leaves the *3ds* place hunting up, and the other when it leaves the *4ths* place hunting down; ſo that there will be in the whole peal Sixſcore *Treble-changes*. When the *whole-hunt* is behind, the four fore-moſt bells dodg; when the *whole-hunt* is before, the four hindmoſt dodg.

213465	316254	615342	514623	412536
231456	361245	651324	541632	421563
234165	362154	653142	546123	425136
324615	632514	563412	456213	245316
234651	362541	653421	546231	425361
326451	635241	564321	452631	243561
236415	365214	654312	542613	423516
326145	635124	564132	452163	243156
321654	631542	561423	451236	241365
312645	613524	516432	415263	214356
132654	163542	156423	145236	124365
136245	165324	154632	142563	124635

&c.

Grandſire upon Symphonie,

1. 2. *and* 6.

THis peal of *Symphonie* may be rang with but two ſingle or two treble changes

at the end of either *Eighteenſcore*, by ringing it with ſingle and double *bobs*, as in *Grandſire Bob*. The rule for calling the *bobs* in this peal is the very ſame as in *Grandſire Bob*, but when the *bob*-changes are to be made, the Hunts do not lie in the ſame order as in *Grandſire Bob*; for in this peal at a ſingle *bob* the *whole-hunt* leads, the *half-hunt* is in the 5*th* place, and the *quarter-hunt* in the 4*th* place. And at the firſt *bob* of a double *bob* the *half-hunt* is in Tenor's place, and *quarter-hunt* in 2*ds* place; and at the later *bob* the

213465	316254	316542	316425	612354
231456	361245	361524	361452	621345
324165	632154	635142	634125	263154
234615	362514	365412	364215	623514
324651	632541	635421	634251	263541
236451	365241	364521	362451	625341
326415	635214	634512	632415	265314
236145	365124	364152	362145	625134
321654	631542	631425	631254	261543
312645	613524	613452	613245	216534
132654	163542	163425	163254	126543
136245	136524	136452	162345	125634 &c.

half-hunt is in the 5*th* place, and *quarter-hunt* in 2*ds* place, juſt contrary to what it is in *Grandſire Bob*. I have prickt this peal with two Treble changes in every twelve; ſo that if you make two Trebles more at the end of either *Eighteenſcore* (which muſt be made when

when the *whole-hunt* is going to lead juſt two changes ſooner than if you ſhould have made a *ſingle)* there will then be in the whole 720 juſt Sixſcore and two Treble changes.

Trebles and Doubles on ſix Bells with ſix Singles. 1. 2. *and* 3.

THis peal is taken ont of the *Dream upon five bells.* Every time the *whole-hunt* is before, there being two changes of that peal made in this. Every bell is a perfect

214365	321456	153462	164352
241635	234165	135426	
426153	243615	153246	146532
462513	426351	152364	145623
645231	462531	125634	
654321	645213	126543	154263
563412	654123		152436
536142	561432	162453	
351624	516342	164235	125346
315264	153624		125364 *ſing. &c.*
132546	*bob.*	146325	
135264	135642	*bob*	
312546			

Hunt, when the *whole-hunt* is before dodg on the four hindmoſt, except the *half-hunt* be either in the 5*th* or Tenor's place, then always *bob* as in *Grandſire Bob*, except the

quar-

quarter-hunt lieth next to the *half-hunt*, for then it is always to be a dodg on the four hindmoſt. Every other time that the *whole-hunt* and *half-hunt* come together before, there is a *ſingle*, which is always made behind.

A Twelveſtore Trebles and Doubles. upon Six Bells.

IN this peal the four foremoſt bells go a four and twenty *Doubles* and *Singles*, obſerving

214365	234165	261453	156423
241356	324156	216435	165243
423165	231465	124653	——
243156	213456	214635	615234
421365	124365	126453	165324
412356	142635	162435	——
143265	416253	614253	163542
142356	461235	612435	136452
413265	642153	164253	——
431256	641235	146235	316425
342165	462153	412653	136245
432156	426135	142563	——
341265	241653	——	132654
314256	421635	145236	123564
132465	246153	154326	——
134256	264135	514362	213546
312465	621453	154632	123456
321456	624135	——	——

always, That for one Four and Twenty the bell

bell in the Treble's place is the hunting bell, and for the next the bell in the *4ths* place throughout the peal, the two hindmoſt bells always dodging till the end of the Twenty Four; at which time there is a *double* made (if the bell in the Treble's place was the Hunt in the Twenty Four) on the four middlemoſt; but if the bell in the *4ths* place was the hunting bell, the double is to be made in Treble and *2d* and *4th* and *5th* places.

Cambridg *Bob.*

THE Treble hath a conſtant dodging courſe; and when it leaves the two hind bells, they dodg until it comes there again, except when the Treble dodgeth before, and then they lie ſtill. The two middle bells always dodg until the Treble comes there. When the Treble leaves dodging before, every bell leads twice, except when the Treble ſieth ſtill behind, and then the two firſt bells make a dodg. *Bobs* are made as in *Grandſire Bob*, and the warning for them the ſame alſo with that.

123456	325416
214365	352146
123465	531264
214356	532146
241365	351264
423156	315246
421365	132564
243156	315264
234516	132546
325461	135264
324516	312546
235461	135246
324561	312564
235416	321546
234561	*&c.*

Fourteen more Peals, composed at CAMBRIDG.

Doubles and Singles on five Bells.

The Paraſite. 1 *and* 5.

IN this peal the Bells behind always dodg, except the Treble prevents them. When Treble is leaving the 3*ds* place hunting up, the bells before dodg at whole pulls, if Tenor be not one of them, until it parts them. The courſe of the bells in hunting is the ſame with *Tendring*.

12345	35241	31524	42531
21354	35214	31542	42513
21345	53124	35124	24153
23154	53142	35142	24135
23145	51324	53412	21453
32415	51342	53421	21435
32451	15324	54312	12453
23415	15342	54321	12435
23451	13524	45231	14253
32541	13542	45213	14235
32514			

&c.

The

The Tulip. 1 *and* 2.

IN this peal Treble hunteth as in *Tendring*. When Treble is in *third's* place hunting up, the bells dodg before at whole-pulls, till it comes and parts them. When it is in *third's* place hunting down the bells behind always dodg, except it leadeth, till it parts them. When Treble is before there are four changes of twenty four *doubles* and *ſingles*; whereof the firſt is brought in by the hunting of the bells. All the *ſingles* in the Twenty four are made in the 3*d* and 4*ths* place, except 1-2 before, then *extream* behind.

21354	51423
21345	51432
23154	54123
23145	54132
32415	45312
32451	45321
23415	54312
23451	54321
32541	45231
32514	45213
23541	54231
23514	54213
32154	45123
32145	45132
31254	41523
31245	41532
13254	14523
13524	14253
15342	12435
15432	12453

&c.

The Honey-ſuckle. 1 *and* 2.

IN this peal every bell leads four times. While every bell but Treble is leading, the bells

bells behind always dodg: every *4th* change is made by the four foremoſt bells. When Treble is leading there are four changes of Twenty four *doubles* and *ſingles* made as in the the former peal. The firſt change is on the four bells before.

31435	53421	51342	24351
21453	53412	51324	24315
24135	35142	53142	42135
24153	35124	53124	42153
42513	31542	35214	41235
42531	31524	35241	41253
45213	13254	32514	14523
45231	13524	32541	14253
54321	15342	23451	12435
54312	15432	23415	12453 &c.

Peals on 5 bells, with twelve Singles.

Blunderbus. 1--2.

IN this peal every bell is a Hunt. When Treble and 2*d* are together either before or behind, the fartheſt bells from them dodg till either of them part, excepting the *extreams.* When the Treble is before a *ſingle* in 3*d* and *4th* place, which is unmade the next time except 1—2; for then the Hunts being

being together before, the bells behind muſt dodg according to the rule forementioned.

21354	14325	13452	51234	23154
23145	41235	13542	15324	21345
32415	42153	31452	15234	12354
34251	24513	34125	51324	12534
43521	25431	43215	53142	——
34512	52341	42351	35412	21543
43152	53214	24531	53421	25134
41325	35124	25413	35241	&c.
14235	31542	42143	32514	

Hudibras. 1 *and* 2.

IN this peal every bell is a Hunt. When Treble is before a *ſingle* always in 3*d* and 4*th* place which is unmade the next time, except it be 1—2, for then the bells behind dodg until Treble parts them.

21354	15423	14532	31245	25143
23145	51243	14352	13425	21534
32415	52134	41532	63245	12354
34251	25314	45123	31425	12534
43521	23541	54213	34152	——
45312	32451	52431	43512	21543
54132	34215	25341	45321	25134
51423	43125	23514	54231	&c.
15243	41352	32154	52413	

Wiſon

Weſton *Doubles.* 1 *and* 5.

IN this peal Treble is is a perfect Hunt. Every other time Treble is leaving the 3*ds* place hunting up, the bells before dodg till it comes and parts them: the bells behind dodg but when Treble hinders them, except the *extreams* which are in 3*d* and 4*ths* place when it is 1—2 before; all the other *ſingles* are made behind when Treble is leading. It may be rang by making all the *ſingles* behind, by making the change before it is 1—2 on the bells before.

12345	13254	51432	45123	32514
21354	13245	15423	41532	23154
23145	31254	15432	14523	21345
32415	32145	51423	14532	12354
23451	23415	54132	41523	
32541	24351	45312	45132	12534
23514	42531	54321	54312	&c.
32154	45213	45231	53421	
31245	54123	54213	35241	

Peals on five bells with 10 *Singles.*

The Antilope.

IN this peal the bells hunt as in *Grandſire.* When Treble is before, a *ſingle* is always made

made by the Tenor, and the bell which followeth it, except two *doubles* which are made as the *singles* in *Granſire*. It may be rang like *Cambridg delight* either way by obſerving the ſame method if like *Cambridg delight* the common way; and by making the *ſingles* by the *half-huut* and the bell before it, if like *Cambridg delight* the other way.

21354	15243	34152	24531	53214	41253
23145	12543	31425	25413	52341	
32415	21534	13452	52143	25431	15432
34251	25143	13425	51234	24513	14532
43521	52413	31452	15324	42153	
45312	54131	34125	13524	41235	12354
54132	45321	43215	31542	14253	*Extr.*
51423	43512	42351	35124	14235	13245

The Maremaid.

IN this peal behind dodg twelve changes, excepting the ſixth which is made on the bells before, and the twelfth which has a *ſingle* in the 3*d* and 4*th* places; and twelve changes before, excepting alſo the ſixth, which is made by the bells behind, and the twelfth which is a *ſingle* in 2*d* and 3*ds* places. When they dodg behind, every odd change is on

13254	12435
31245	21345
32154	12354
23145	21534
21354	12543
12534	15234
15243	51243
51234	15423
52143	51432
25134	15342
21543	51324
21453	53124

&c.

the laſt bells, and every even one a *bob*, excepting theſe two changes. When they dodg before, every odd change is a *bob*, and every even one on the four firſt bells, excepting likewiſe thoſe two changes which are made according to the forementioned rule

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The Checkquer. 1 *and* 5.

IN this peal the Treble is *whole-hunt*, and Tenor the *half-hunt* for twenty changes; and then Tenor the *whole-hunt* and *treble* the *half-hunt* for the next twenty, and ſo they hunt by turns throughout the peal. When Treble is the *whole-hunt* the bells behind always dodg, except it hinders them; and when Tenor is the *whole-hunt*, the bells before, except that hinders them; when Treble is before and Tenor dodging behind, a *ſingle* made by the Tenor and the bell which dodged with it; when Tenor is behind and Treble dodging before, a *ſingle* made by the Treble and the bell which dodgeth with that.

21354	31254
23145	13524
32415	15342
34251	51432
43521	54123
45312	45213
54132	42531
51423	24351
15432	42315
14523	24135
41532	42153
45123	24513
54213	25431
52431	52341
25341	53214
23514	35124
32154	31542
31245	13452
13254	31425
13245	13425

&c.

THis peal may be rang by hunting the Treble and Tenor as before, and it differeth from it only in this; when it is 1 – 5 behind in the hunting of the Treble, the bells before dodg till Tenor parts them; and when it is 1 – 5 before, in the hunting of the Tenor the bells behind dodg till Treble parts them: and then when Treble is the *whole-hunt* and Tenor *half*, it is plain *Cambridg delight* inverted. It may be rang by hunting the *half-hunt*, as in *Cambridg Delight the other way*, in either of those ways of ringing it, but then the *single* is always made by the hunting bell.

21354	12543
23145	21453
32415	24135
34251	42315
43521	43251
45312	34521
54132	35412
51423	53142
15432	35124
14523	53214
41532	35241
45123	53421
54213	54312
52431	45132
25341	41523
52314	14532
25134	15423
21543	51243
12534	15234
21534	15243

&c.

An example in that like *Cambridg Delight the other way*.

Gogmagog. I. 5.

IN this peal the bells hunt as in *Grandsire*, and it differeth from it in this, That there is not every other time a single *bob*, but instead of a single one every other time a double one: so that only once in four times there is a single *bob*; when Tenor is dodging behind there is always a *single* made by it, and the bell which dodgeth with it if Treble leadeth, otherwise not.

21354345121	2543
23145431521	2534
32415413252	5143
34251435252	4213
43521 ——	4231
45312143254	5321
54132413524	3512
51423431253	4152
15243342153	1425
12534324511	3452
21543235414	——
25134253143	3425
52314521343	1452
53241512433	4125
35421152343	&c.

I — 4.

THis peal may be rung like *Cambridg Delight*, if every other time the dodging before be omitted; or it may be rang by dodging constantly as in *Cambridg Delight*, by making double *bobs* and single *bobs* as in *Grandsire*: it may likewise be rang by making the course of the *half-hunt* in all the ways

ways of ringing it the ſame with *Cambridg delight the other way*; obſerving in all of them to make the *ſingles* as before directed.

An example of that like *Cambridg Delight the other way*, in which the dodging before is every other time omitted. 1 – 4.

21354	14523	12534	34152	25314
23145	41532	——	31425	52134
32415	45123	12543	13452	51243
34251	54213	21534	14325	15234
43521	52431	25143	41352	——
45312	25341	52413	43125	15243
54132	52314	54231	34215	51234
51423	25134	45321	32451	52143
15432	21543	43521	23541	

Cambridg *Marigold.* 1. 2. *and* 3.

IN this peal are 720 changes, which are all *doubles* except 12 *ſingles* which are made as in Plain *trebles* and *doubles*. *Treble* is a perfect Hunt, and except the *dodges* (which are the ſame as in *Oxford double Bob*) every double change is made by the *treble* and the

214356	312564	165432
241536	321654	164523
425136	236154	——
452316	263514	146253
453261	265341	142645
542361	623541	——
543216	625314	124365
534126	652134	124635
351426	561234	&c.
315246	516324	
132546	153624	
135264	156342	

three next bells to it: obſerving always that the bell in *Tenor*'s place lieth ſtill 'till it giveth place to the *Treble*, or be removed by a dodg behind when the *Treble* is before. When *Treble* leaveth 3*ds* place hunting up, the bell that then comes before, leads thrice, and likewiſe the next bell after it till *Treble* cometh back into 3*ds* place again; at all other times every bell leads twice. The bell in Tenor's place lieth five times behind, (and when the *ſingle* is made in the middle *ten* times) till *treble* remove it; and when *treble* comes back it lieth five times more behind, and then is diſplaced by a dodg behind and hunts down at whole-pulls. This peal may be rang by making *bobs* ſingle and double as in *Grandſire Bob* with but two *ſingles* or two *trebles*, which muſt be made juſt Eighteen ſcore changes one from the other.

The Nightingall. 1. 2. *and* 3.

IN this peal are 720 changes, which are all *doubles* except twelve *ſingles*, which are made as in the former peal; and if you ring *Grandſire Bob* upon it, there may be but two ſingles, or elſe two *trebles*, as in the *Marigold. Treble* is a perfect Hunt: the bells in 4*th* and

and 5*th* places dodg till *treble* parts them, and then the two foremoſt bells do the like for eight changes together till *treble* hinders them, and gives way to the other two bells to dodg again in the 4*th* and 5*th* places, which is always for three changes and no more, except when the *ſingle* is made in that place, and then they dodg ſix times. When *treble* is behind, dodg the four firſt; when it is before on the four laſt, as in *Marigold.*

123456	356241
213546	536214
231456	356124
324156	531624
234516	513264
324561	153624
235461	156342
325416	
235146	165432
321546	164523
312456	
132546	146253
135264	142635
315624	
351264	124365
532164	*ſing.*
352614	124635
532641	

FINIS.